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PROCEEDINGS
OF THE
WEST LONDON
MEDICO-CHIRURGICAL SOCIETY.

VOLUME THE SIXTH.
Sessions 1892=93 and 1893=94.

EDITED FOR THE COUNCIL
BY
J. HERBERT MENZIES
AND
ARTHUR H. WEISS CLEMOW, M.D.



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PREFACE.

THE present volume (vol. vi.) comprises the proceedings of the Society during the Eleventh and Twelfth Sessions, 1892-93, 1893-94.

The Cavendish Lectures delivered by Mr. Henry Morris and Sir William Broadbent are published *in extenso*, and coincidentally deal with the subjects of the Presidential Addresses in their respective years.

The Council deem it proper to state that the authors of the several communications are alone responsible for the statements, reasonings, and opinions contained in their several papers.

J. HERBERT MENZIES,
ARTHUR H. WEISS CLEMOW, } EDITORS.

July 31, 1895.

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Ryall, E. C. . .	St. Mark's Hospital, E.C.
Savage, J. . .	11, Avonmore Road, Kensington, W.
Savery, Frank . .	4, Mount Park Road, Ealing, W.
Savill, T. D., M.D. (C., O.M.) . .	12, Upper Berkeley Street, W.
Schacht, F. F., M.D., (V.P., S., L., C., O.M.) . .	168, Earl's Court Road, S.W.
Scharlieb, H. J. . .	149, Harley Street, W.
Scott, A., M.D. . .	Bradford Street, Bocking, Essex.
Scott, A. L. . .	Westbourne Villa, Uxbridge Road, Ealing,
Shadwell, H. W. . .	4, Emmanuel Road, Acton, W. [W.]
Shaw, Arthur H. P. . .	Fulham Union Infirmary, S.W.
Sheldon, T., M.D. (O.M.) . .	25, Powis Square, Notting Hill, W.
Shuttleworth, G. E., M.D. . .	Ancaster House, Richmond, Surrey.
Slevin, P. . .	The Green, West Drayton.
Smith, H. A. . .	Burnham Lodge, Grange Road, Ealing, W.
Smith, Stanley . .	10, Kensington Gardens Square, W.
Spencer, Herbert, M.D. . .	10, Mansfield Street, W.
Spicer, R. Scanes, M.D. (C.) . .	28, Welbeck Street, W.
Staples, J., M.D. . .	9, Burwood Place, Norfolk Crescent, N.W.
Starkie, R. F., M.D. . .	47, Sussex Street, Warwick Square, S.W.
Starling, John . .	Hornton House, Hornton St., Kensington,
Startin, James . .	15, Harley Street, Cavendish Square, W. [W.]
Steele, Russell, M.D. . .	The Red House, Hemel Hempstead, Herts.
Steer, William (C.) . .	Union Infirmary, Fulham Palace Road, W.
Stocker, E. G. . .	Woodfield House, Floore, Weedon.
Stocker, W. W. . .	Willesden Lane, N.W.
Sunderland, Sept., M.D. . .	35, Bruton Street, W.
Sutherland, Henry, M.D. (C.) . .	6, Richmond Terrace, Whitehall, S.W.
Sweeting, R. D. R. . .	39, Addison Gardens, W.
Tait, E. S., M.D. . .	48, Highbury Park, N.
Taylor, Alf. Ernest, M.D. . .	Bradbourn House, Acton, W.
Taylor, H. H. . .	10, Brunswick Place, Brighton.
Taylor, Michael H. . .	16, Church Road, Richmond.
Taylor, Seymour, M.D. . .	16, Seymour Street, Portman Square, W.
Thompson, Maitland . .	Brooklands, Hemel Hempstead, Herts.
Thomson, J. C., M.D. . .	111, Sinclair Road, West Kensington Park,
Thornton, B. . .	14, Cecil Square, Margate. [W.]
Thudichum, J. W. L., M.D. (P., V.P., C., O.M.) . .	11, Pembroke Gardens, Kensington, W.
Times, Lawrence K. . .	23, Manchester Street, W.
Tims, H. W. Marrett, M.D. . .	64, Welbeck Street, W.
Travers, W., M.D., (P., V.P., C., O.M.) . .	2, Phillimore Gardens, Kensington, W.
Trower, Arthur . .	12, Moreton Gardens, S.W.
Tuke, C. M. (O.M., C.) . .	Chiswick House, Chiswick, W.
Tuke, T. Seymour (M.B.) . .	37, Albemarle Street, W.
Turnbull, G. L., M.D. . .	121, Ladbroke Grove, W.
Turner, W. A., M.B. . .	13, Queen Anne Street, W.
Venn, A. J., M.D. . .	70a, Grosvenor Street, W.
Vicars, G. Fred. . .	38, Brompton Crescent, S.W.
Wainwright, B., M.B. . .	67, Grosvenor Street, W.
Wakefield, R. C. . .	144, Lancaster Road, Notting Hill, W.
Walker, Horace (C., O.M.) . .	143, Hammersmith Road, W.
Wall, Reginald B. . .	78, Bishop's Road, W.
Wallis, F. Chas., M.B. . .	26, Welbeck Street, W.
Walsh, David, M.B. . .	62, Welbeck Street, Cavendish Square, W.
Warner, F. A. . .	10, Brechin Place, South Kensington, S.W.
Watts, Guy A. T., M.B. . .	36, Russell Road, Kensington, W.
Waugh, H. D., M.B. . .	6, Sumner Place, Onslow Square, S.W.

List of Members.

13

Webb, H.	.. Wentworth House, Parson's Green, W.
Weber, F. Parkes, M.D.	.. 19, Harley Street, W.
Weldon, George, M.B.	.. 84, Brompton Road, S.W.
Wells, A. G. (C.)	.. Keith House, Beaumont Terrace, W. Ken-
Wells, Chas., M.D.	.. 161, Finchley Road, N.W. [sington.
(V.P., P., T., C., O.M.)	
Wharry, H. G. Oliphant	.. 84, Park Street, Grosvenor Square, W.
Wheatley, A. W., M.B. (A.)	.. 3, Kensington Court, W.
Whitcombe, P., M.B.	.. 164, Earl's Court Road, S.W.
White, C. Percival, M.B.	.. 144, Sloane Street, S.W.
Whitmore, W. Tickle	.. 7, Arlington Street, S.W.
Wilkin, G. C.	.. 39, Weymouth Street, W.
Wilkins, H. G. (O.M.)	.. 1, Windsor Road, Ealing Road, W.
Wilcocks, Frederick, M.D.	.. 14, Mandeville Place, W.
Williams, Alex. L.	.. 1, Brunswick Terrace, Kensington, W.
Williams, H. Lloyd	.. 2, Upper Wimpole Street, W.
Williams, H., M.D.	.. Guilsborough, Northampton.
Williams, R., M.D.	.. 95, St. Mark's Road, Notting Hill, W.
Wilson, R. W., M.D.	.. Aden House, Ennerdale Road, Kew Gar-
Wilson, William, M.B.	.. 184, Goldhawk Road, W. [dens.
Woakes, Edward, M.D.	.. 78, Harley Street, W.
Wood, N. T.	.. 42, Elvaston Place, S.W.
Woodforde, A. P.	.. 160, Goldhawk Road, Shepherd's Bush, W.
Wornum, G. P.	.. 6, College Terrace, Belsize Park, N.W.
Yearsley, P. Macleod	.. 11, Wimpole Street, W.
Young, A.	.. 2, College Crescent, Swiss Cottage, N.W.

Corresponding Members.

Atkinson, J. M., M.D.	.. Civil Hospital, Hong Kong.
Beckingsale, D. L., M.D.	.. Granville, British Columbia.
Brown, Surg.-Capt. F. J.	..
Davis, Surg. E.	.. Army Medical Department.
Edward, Surg. A. R.	.. Bengal Army.
Harvey, Surg.-Maj. R., M.D.	.. Do.
Hendley, Surg. H.	.. Do.
Hendley, Surg.-Col. T. H., C.I.E.	.. Do.
Huggard, W. R., M.D.	.. Davos Platz, Switzerland.
McCulloch, Surg. T. C.	.. Army Medical Department.
Newman, E. A.	..
Olding, T. F., C.M.G.	.. Shiraz, Persia.
Thomson, W. S.	.. New Zealand.
Walsh, Surg. J. H. T.	.. Bengal Army.
Webster, G. A., M.D.	.. Melbourne.

REPORT

*Presented at the Eleventh Annual Meeting by the Council,
July 7th, 1893.*

The Council has much pleasure in presenting the Annual Report of the Eleventh Session, and congratulates the members upon the increasing prosperity of the Society. The nine ordinary meetings have been well attended, the average attendance being forty-three. The Council has noted with satisfaction the popularity of the Clinical Meetings, of which three have been held during the Session.

Fifteen papers have been read.

The Cavendish Lecture, delivered by MR. HENRY MORRIS at a Special Meeting on Wednesday, June 14th, on "Some Changes in Surgical Opinion regarding the Diseases of the Urinary Organs," was an able and exhaustive review of the progress of urinary surgery.

The President and Council afterwards entertained the members and their friends at a *Conversazione* in the Out-Patient Hall of the Hospital, at which over 110 guests were present.

The Librarian regrets that want of suitable accommodation prevents the Library from being brought auspiciously before members, but he will be glad to communicate with those who wish to make use of it or to add to it.

Thirty-four new members have been elected, twelve members have resigned, and five have been removed from the list of members by Law 27—owing to arrears of subscriptions.

The Council deeply regrets the loss by death of five members: H. C. ANDREWS, M.D.; C. E. COTES, M.B., F.R.C.S.; W. B. HADDEN, M.D.; J. INGLEBY MACKENZIE, M.D.; and CHAS. VASEY.

The Society now numbers 347.

The favourable state of the Society's funds—a result largely due to the energy of our Treasurer—has enabled the Council to make a donation of five guineas to the West London Hospital, which it is hoped may now be continued annually.

The best thanks of the Society are again due to the Committee of the West London Hospital for the use of their rooms, and to Mr. R. J. GILBERT, the Secretary-Superintendent, for his unvarying courtesy and ever-ready help to the officers of the Society.

PAPERS.

THE PRESIDENTIAL ADDRESS.—“Urinary Surgery of the Present Day contrasted with that of Twelve Years Ago.”

DR. THUDICHUM.—“The Origin and Treatment of Gall-Stones.”

DR. H. SUTHERLAND.—“The Prevention of Suicide in the Insane.”

MR. BRUCE CLARKE.—“Some Varieties of Cystitis, with Remarks on their Diagnosis and Treatment.”

DR. J. CROMBIE.—“Brief Notes of a Case of Ulcerative Endocarditis.”

MR. E. HURRY FENWICK.—“The Effects of Epidemic Influenza upon the Urinary Organs.”

MR. L. A. BIDWELL.—“A Modified Operation for Relief of Undescended Testis.”

DR. ARCHIBALD GARROD.—“Notes on some of the Phenomena of Chlorosis.”

DR. A. BARRY BLACKER } —“*Light* from a Medical Point of
DR. R. H. CLARKE } View.”

MR. C. B. KEETLEY.—“Spinal Abscess and Paralysis due to Spinal Diseases and Injuries.”

DR. C. W. CHAPMAN.—“Short Notes of a Case of Primary Carcinoma of Kidney.”

MR. J. R. LUNN.—“Short Notes on Two Cases of Obscure Renal Disease.”

DR. S. BONTOR.—“A Case of Primary Tuberculous Cystitis in a Child.”

DR. J. B. BALL.—“On Cases of Purulent Nasal Discharge in Children.”

DR. WM. TRAVERS.—“Notes on a Case of Albuminuria in Pregnancy.”

THE CAVENDISH LECTURE.

MR. HENRY MORRIS.—“Some Changes in Surgical Opinion regarding the Diseases of the Urinary Organs.”

CLINICAL CASES

The President, MR. SWINFORD EDWARDS.—

A man suffering from Peculiar Affection of Mucous Membrane of the Palate, probably malignant.

„ „ Two cases of Successful Wiring of Patella.

„ „ A man after Left Inguinal Colotomy for Malignant Disease of the Rectum.

„ „ Large Villous Tumour of Rectum in a female.

DR. ABRAHAM.—A case of Nodular Leprosy.

„ „ A child with numerous Comedones on the Forehead.

MR. T. R. ATKINSON.—A case of probable Cyst of the Right Kidney.

MR. L. A. BIDWELL.—A case of Compound Comminuted Fracture of Humerus treated by wiring.

„ „ A man with Epithelial Crypts of Palm, and Dupuytren's Contraction.

DR. C. W. CHAPMAN.—A case of Morbus Cordis.

MR. BRUCE CLARKE.—A case of Nephrorrhaphy.

„ „ A case of unusual form of Rodent Ulcer.

DR. CLIPPINGDALE.—A case of Epithelial Hypertrophies of Skin.

DR. MORGAN DOCKRELL.—A case of Adenoma Sebaceum.

„ „ Case of Molluscum Contagiosum (limited to backs of hands).

MR. C. B. KEETLEY :—Cases of—

„ „ Wiring of Fractured Olecranon.

„ „ Removal of Thyroid Gland.

„ „ Fixation of Undescended Testis in Scrotum.

„ „ Excision of Bronchocele.

„ „ Subcutaneous Suture of Patella.

„ „ Inguinal Hernia with Undescended Testis in a boy æt. 10.

„ „ Tumour of Muscles of Forearm.

MR. R. LAKE.—A case of Cholesteatomata of Mastoid Antrum.

„ „ A case of Lupus of Larynx, Pharynx, and Palate.

MR. J. HERBERT MENZIES (for MR. LAKE).—A case of Adenoma of Thyroid in a male.

- MR. WM. STEER.—A case of Friedreich's Disease.
 „ „ Progressive Muscular Atrophy of Youth.
 „ „ Myxœdema in a male.
 DR. H. SUTHERLAND.—Three cases of Morbus Cordis.
 DR. MARRETT TIMS.—A case of Xanthoma Diabeticorum.
 „ „ A case of Skin Disease for Diagnosis.

DEMONSTRATIONS.

- DR. RAYNER BATTEN exhibited and explained a Clinical Pulse Manometer.
 MR. R. LAKE exhibited a new form of Mastoid Gouge.
 DR. HENRY SUTHERLAND demonstrated the various methods of artificially feeding the Insane.

PATHOLOGICAL SPECIMENS.

- THE PRESIDENT.—Osteo-sarcoma of Femur.
 „ „ Sarcoma of Hand.
 „ „ Carcinoma of Rectum.
 MR. R. F. BENHAM.—Large Ovarian Cyst to which the Vermiform Appendix was adherent.
 „ „ Growth at back of Orbit following Dislocated Lens.
 DR. S. BONTOR.—Primary Tuberculous Cystitis in a child.
 DR. C. W. CHAPMAN.—Primary Carcinoma of Kidney.
 DR. A. H. CLEMOW.—Dermoid Cysts.
 DR. J. CROMBIE.—Ulcerative Endocarditis.
 MR. PERCY DUNN (for DR. ANDREW ELLIOT).—Tubular piece of Mucous Membrane from the Intestinal Canal.
 MR. KEETLEY.—Cystic Adenoma of Thyroid.
 DR. CAMPBELL POPE.—Ovum of one month.
 „ „ Twin Ova of two months.
 „ „ Maggots discharged per Anum.
 „ „ Tube of urine with nitrate of urea crystals, containing spores, formed on a pellicle of albumen, from a case of West Coast fever.
 „ „ Cast from a case of Membranous Colitis.

Signed on behalf of the Council,

F. SWINFORD EDWARDS, *President*.

J. HERBERT MENZIES, } *Hon.*
 ARTHUR H. WEISS CLEMOW, } *Secretaries.*

ELEVENTH SESSION, 1892-93.

REPORTS OF PAPERS, CASES, DEBATES, ETC.,
AT THE
ORDINARY MEETINGS OF THE SOCIETY.

THE PRESIDENTIAL ADDRESS

ON

“URINARY SURGERY OF THE PRESENT DAY CONTRASTED WITH
THAT OF TWELVE YEARS AGO.”

BY

F. SWINFORD EDWARDS, F.R.C.S.

Delivered before the Society on Friday, October 7th, 1892.

GENTLEMEN,—The position which I occupy this evening being a novel one, it is calculated on the one hand to charm me—for are not novelties the craze of the age in which we live?—and on the other to give rise to a feeling of misgiving, for I cannot possibly know by experience what dangers may be ahead, and of my inexperience I am painfully cognisant. There are sins of omission as well as of commission; the latter I may escape, but not so the former: for I cannot hope to fill this chair with that dignity, urbanity, and erudition with which so many of its former occupants have adorned it. However, gentlemen, you have seen fit to select me for this high office—for what reason I cannot say—unless it be that I have been closely associated with the Society since its formation, and have had—thanks to its Council—many opportunities of bringing both papers and cases under its notice, and you probably think the time has now arrived when I should be made of some use. Let the cause be what it may, for this mark of your favour I beg to thank you in all sincerity, and I promise you to do all in my power, by emulating my predecessors in the chair, to maintain and further the interests of this our Society.

In this I have no doubt I shall be ably seconded by our secretaries. One, Mr. Menzies, I have had the advantage of

knowing for many years, our acquaintance dating from the time when he was my house-surgeon in this hospital, and from all I have seen and known of him, I am sure he is the right man in the right place. The other, Dr. Clemow, is also well known to most of us, and he will, I doubt not, vie with his colleague in the ability, diligence, and suavity he brings to bear on the important duties of his office. Before entering upon the more technical part of my address to you, I must not forget to congratulate the society upon the work it has accomplished during the past Session under the able presidency of Dr. Wells. On ordinary nights the average attendance has been thirty-five, and on evenings devoted to clinical cases forty-two. I think that these figures alone show how much the West London Medico-Chirurgical Society is appreciated by its members, not only, if I might venture to guess, as a scientific debating society, but also as a place of meeting and social intercourse with one's friends and brother practitioners. It has often been said that this is a most successful young society ; but, gentlemen, if you wish it to remain so, you must not relay your efforts on its behalf either by contributing papers or remarks to its transactions, or by inducing your friends to join our ranks. The future of this Society—born of Mr. Keetley, nursed (as it has been said) by Drs. Vinen and Thudichum, fostered by Mr. Hemming and Dr. Alderson, nurtured by Drs. Travers and Campbell Pope, and more recently guided by Mr. Alderton and Dr. Wells—rests with you.

The subject which I have chosen as my opening address, viz., "Urinary Surgery of the Present Day contrasted with that of Twelve Years Ago," is a large one, more especially so as the advance in this department yields to none other the palm. By reason of my connection with St. Peter's Hospital for stone and urinary disease during this period, I have of necessity been closely associated with this branch of work ; and on looking back a decade, I cannot help being struck with the difference in practice, not only as to treatment, but also with regard to diagnosis, which now exists. Let us first of all take the treatment of vesical calculus. Then the operation of litholapaxy, or lithotritry at a single sitting, which had recently become the established method in the United States, owing to the efforts of its originator (Bigelow), was only just beginning to become general in this country, taking the place of its old and dangerous predecessor, lithotritry at several sittings. In an able paper on litholapaxy, in the *British*

Medical Journal, Surgeon-Major Freyer says: "Litholapaxy is almost universally applicable to all cases of vesical calculus as is shown by the fact that I have been enabled to perform this operation in 165 out of my latest 168 cases of stone occurring in both sexes and in all ages and conditions. During 1890, 106 patients suffering from stone came under my treatment, and litholapaxy was performed in one and all of these with one death." Nothing can testify more clearly as to the position which this operation now holds, and although every surgeon cannot expect to get such brilliant results as our brother surgeons in India—chiefly owing to a dearth of material and consequent want of practice—yet this does not detract in any way from the boon which Professor Bigelow has conferred on suffering humanity. The recognition of the capacity of the urethra, due to another American surgeon, Otis, as well as the fact that patients could be kept under the prolonged influence of an anæsthetic without undue harm, largely contributed to its ultimate success.

In those days the operation of suprapubic lithotomy, although known, had fallen into disrepute owing to the fatal results with which it was attended. (In Civiale's practice it was 1 in 2. Professor Humphry's statistics showed 1 in 3, and Gross put it down as 1 death in 4.) Perinæal lithotomy was, therefore, the order of the day. But—thanks chiefly to the researches of Dr. Garson, late assistant-curator of the Museum of the Royal College of Surgeons, conducted at Vienna, in 1887, showing how much room might be obtained for getting at the bladder between the peritoneal fold and symphysis pubis by distending the rectum, and utilized by Petersen, of Kiel, and following him by Perier and Guyon, of Paris, and taken up not long after by Sir Henry Thompson—suprapubic cystotomy has now become a well-recognised and established operation not only for the removal of large stones—encysted stones, small and large, and other foreign bodies—but also for the removal of growths, whether of the bladder or of the prostate—not to mention its employment in affording a permanent drain in cases of vesical disease. It is also justifiable in certain cases for purely exploratory purposes. Distension of the rectum, then, it was which first reattracted surgeons' attention to the suprapubic route. Now this, which was at first considered to be an essential part of the operation, is just that item which is most often omitted. Distension of the bladder itself, a point on which much stress used to be laid, is now not looked upon as of such importance, and this is

fortunate, as many bladders will not bear much dilating. I have myself performed the operation on several occasions, besides being present either as an assistant or an onlooker at many others, and I have only once seen the rectal bag used ; but notwithstanding, I have only once seen the peritoneum, and then it was recognised and therefore discreetly avoided. Suprapubic lithotomy being limited now, as a rule, to cases unfit for litholapaxy, the cases are mostly severe ones, hence the mortality is high, Guyon's being, in 1888, 47·3 per cent., and Dittel's 55·5 per cent. On the other hand, suprapubic cystotomy shows very favourable results. In 123 cases taken from the practice of six surgeons, I find the mortality is not more than 11½ per cent.

In those days stone in boys was invariably removed by lateral lithotomy, but owing chiefly to the labours of Surgeon-Major Keegan, of Indore, now Brigade-Surgeon, these cases can be safely and much more expeditiously treated by litholapaxy, and, mark you, without running the risk of either permanent incontinence of urine or of a troublesome rectovesical fistula, one of which accidents was not uncommon after the cutting operation. It has also been said that emasculation sometimes followed lateral lithotomy, owing to severance of the seminal ducts. Of this I have myself seen one example, but I doubt if it was as frequent as some would lead us to believe. Twelve years ago the mortality of lithotomy in the male adult averaged about 28 per cent., whilst in boys it averaged 5 per cent. This comparative low rate of mortality in boys induced surgeons to think that it was a perfect operation, and that nothing better could be wished for. Years ago, Mr. Aston Key remarked, "Seeing, then, that so little risk and suffering attends lithotomy in children, it is difficult for us to find an equally safe and efficient substitute ; it can scarcely, indeed, be said to be required." Contrast this with statistics which are to hand from our Indian Empire.

Brigade-Surgeon Keegan, in the *Lancet* of October 5th, 1890, has placed on record a series of 160 cases of litholapaxy in boys, with seven deaths. Only one death, however, does he attribute to the operation. In four or five cases the fatal result was due to renal disease. But good as is this record, it is beaten by Surgeon-Major Freyer, who was over here last year, when I had the pleasure of making his acquaintance. Up to that time he had done 115 litholapaxies in boys, with complete success, and without a death !

Keegan, up to May, 1890, had performed 125 himself in male children and boys, with four deaths; this is included in the 160 cases just mentioned. His mortality is, therefore, only 3·2. The average number of days spent in hospital after the operation was 4·6. The average age of the boys was 6·38 years, and the average weight of the stone was rather over 89 grains. In the *Indian Medical Gazette* for July of this year, Keegan reports that 500 litholapaxies have been done at the Indore Hospital, with a mortality of only 3·6 per cent.; of these 500, 214 were in boys, with a death-rate of 3·27 per cent., and of these the vast majority had been performed by himself.

Dr. Keegan says: "When I advocate litholapaxy as being the best operation in my opinion for the great majority of cases of stone occurring in male children and boys, I do so with a very important reservation, viz., that no one should attempt to perform it in boys until he has first gained some practical experience of it in adult males; . . . also, a surgeon must not flatter himself that because he has performed a successful lateral lithotomy, or a suprapubic cystotomy, for a stone weighing 30 grains, on a boy of ten years of age, into whose urethra a No. 8 lithotrite would have readily passed, that that boy has been especially lucky in coming under his care, for he may rest assured that that boy would have been luckier still had he been entrusted in the first instance to the care of one skilled in performing litholapaxy."

Of the various sections of urinary work, as much or more activity has been displayed in tackling the prostate in recent years as in any other. Ten years ago, the only operation undertaken for restoring the function of micturition in cases of an obstructing prostate was an intra-urethral one. Mercier advocated prostatotomy, using an inciseur for dividing the bar or valve situated between the enlarged lateral lobes; and following him came Gouley, of New York, who invented a very ingenious prostatome, by which he was enabled to punch out a piece of prostatic tissue from the same region. Both these operations are carried out by instruments passed along the urethra. On first seeing Gouley's prostatome, and for which I was indebted to the late Mr. Teevan, of this hospital, I was one of those who hoped great things from it, and in the first case in which I tried it—a case of complete obstruction—the function of micturition was restored, the patient passing almost all his water naturally; but a relapse occurred within a month. I repeated it with a like good result at first, but his

trouble returned sooner than before. In three other cases did I try it, but in none was the benefit permanent. In passing, I might say that, were the results only lasting, this might be considered an ideal operation, as it is easy of performance, and subjects the patient to but a minimum amount of risk, no serious complication having followed in my cases. It has occurred to me that if the instrument were so made that a larger piece of the gland could be removed, the benefit to be derived might be more lasting, if not permanent.

Efforts have been made, amongst others, by my colleague, Mr. Reginald Harrison, by the use of bellied bougies passed through the prostatic urethra, to produce a moulding and shrinkage of the part; but this manœuvre, although theoretically sound, in the first stage of hypertrophy, appears of but little use in the later stages, *i.e.*, when the obstruction is such as to lead the patient to seek our aid.

Suprapubic prostatectomy was the next idea, and was, I believe, first performed by Dittel, in 1885, and, following him, by Trendelenburg, Belfield, and Schmidt. In this country McGill soon took it up, and became its warm advocate; in fact, it is pretty generally known as his operation. Mansell Moullin, in his lectures before the College of Surgeons this year, has collected ninety-four cases of this operation with a mortality of upwards of 20 per cent.; but he points out that whereas twelve deaths occurred in the first half, only seven took place in the second, showing that with extended practice the mortality is likely to decrease. Looking to the gravity of this operation, surgeons have cast about for some safer means of dealing with this disease, and have of late been trying the effects of electricity. Newman, the apostle of electrolysis in America, speaks highly of its employment in these cases, though of his exact method I cannot speak. Casper, of Berlin, has lately tried to bring about a diminution of the enlarged prostate, by passing a current through it by means of the negative pole thrust into its substance through the rectum. Out of four cases he claims two cures, though one was cured at the expense of a fistula. Abroad, Professor Bottini, and in this country Messrs. Bruce Clarke and Hurry Fenwick, have been employing the thermo-galvanic cautery by means of an instrument designed by Bottini, and which is applied through the urethra. Mr. Bruce Clarke tells me that he is well pleased with it in certain selected cases; but, on the other hand, Mr. Fenwick has not had marked success with it, and from personal experience I cannot say that it is altogether

devoid of risk, though in Bottini's own hands this does not appear to be great, for of seventy-seven cases (quoting again from Moullin) there were two deaths and fifty-two cures. Dr. Morotti, of Pavia, a pupil of Bottini's, and whom I have had the pleasure of meeting, says: "It is not altogether free from danger unless the greatest care be used, and it should be reserved for cases in which strangury is persistent. It is contra-indicated in renal disease, or even where it is suspected."

It strikes me, therefore, that according to this most cases would be found unfit—either not bad enough, or else so far advanced as to be beyond its reach. I cannot help thinking that as soon as it is clear that the amount of residual urine shows no signs of diminishing, the sooner operative interference takes place the better, if success is to attend it. By whatever means we try to remove the obstructing growth—and up to the present it appears to me that McGill's operation offers the best chance of a radical cure—it is of the utmost importance that we undertake it early in the history of the case. It is worse than useless to wait until the kidneys have become diseased, or until the bladder has become permanently contracted and lost all power of expelling its contents. In such cases where catheterism is no longer to be borne, we can only fall back on permanent drainage, either by the suprapubic or perinæal route.

Let us now pass to a consideration of diseases of the bladder itself. In the diagnosis of such conditions as new growths, encysted calculus, congestion and ulceration, sacculi and renal hæmaturia, the employment of the electric light, by means of the cystoscope, has been of immense advantage. Leiter and Nitze divide the honours between them of our modern cystoscope, whilst Fenwick has worked hard at this subject in our country, and has done much to popularize its use. Ten years ago it was practically unknown. Then we had to trust to digital exploration by means of the boutonnière operation as advocated and practised by Sir Henry Thompson. But in cases where the perinæum is deep it is by no means easy to get even the tip of the finger into the bladder, much less to examine the whole of the interior, even when the finger is well within the vesical cavity. Such conditions as congestion, ulceration (when not due to malignant disease), slight conditions of villous disease, etc., are almost, if not quite, beyond diagnosis by this method. That this is so may be inferred (as Fenwick points out) from an analysis of forty-three cases of digital exploration by Sir Henry Thompson,

for in fourteen of these cases nothing was found, although presumably the symptoms were severe enough to call for this surgical interference. Now, thanks to electric illumination, we are, in the majority of cases, able to do without a cutting operation for purely diagnostic purposes. The two most important, and at the same time most frequently occurring, conditions which offer a serious bar to the employment of the light undoubtedly are hæmaturia and prostatic enlargement. Should the patient be the subject of stricture, this must of necessity be first treated. Prostatic hypertrophy may altogether prevent the introduction of the cystoscope; but it rarely happens, probably on account of the shape of the instrument, which, being fashioned like a Coudé catheter, has a facility for gliding over an obstructing third lobe. Bloody urine is the cystoscope's worst enemy, for unless the urine or fluid in the bladder be quite clear, little can be seen, and it is just in cases where this symptom, viz., hæmaturia, is a prominent one, that we most want the information to be derived from the light. It is fortunate that, in most cases in which bleeding is present, it can be arrested at all events temporarily by rest in bed, coupled perhaps by the administration of iron and ergot, gallic acid, or last, but not least, of hazeline. Indeed, this remedy, if locally employed, is often sufficient to check bleeding at the time the examination is to be undertaken. More than once a patient has been brought into the theatre passing blood-stained urine, which has been completely arrested for the time being by washing out with equal parts of hazeline and water. Where this is unavailing, nothing remains but to fall back upon digital exploration or suprapubic cystotomy.

With the aid of the cystoscope I have seen local patches and congestion and submucous hæmorrhages, cancerous, tubercular, and simple ulcerations, papillomata, a villous condition of the mucous membrane, adherent phosphatic deposit, encysted calculus, and, lastly, blood issuing from one ureter, as is somewhat graphically represented by Mr. Fenwick in his work on electric endoscopy; and some of these cases have been verified by a subsequent operation. I have never employed it to search for stone in ordinary cases, as should the sound discover nothing (and it does sometimes miss a small and light calculus), the evacuating cannula and bottle will be sure to discover it if loose in the bladder, and it may possibly at the same time remove it. I cannot help mentioning here a striking instance of the value of the cysto-

scope. The case was under the care of Mr. Harrison, in St. Peter's Hospital. It was that of a man who affirmed that a week previously he had passed up a piece of grass into his bladder. Mr. Harrison passed a large evacuating cannula and endeavoured to suck it out through this, but in vain; then he tried to catch it with a lithotrite, but this was not successful. He then sounded the patient and could discover nothing; indeed, he was almost inclined to doubt the man's word. It then occurred to him to use the cystoscope, and Mr. Fenwick, who with myself was present, passed it at the operator's request. By its means several of us who were present were able to see most clearly a branched piece of grass lying on the right base of the bladder. It was then comparatively an easy matter to seize and extract it with the lithotrite. In this, as in other special departments, where the ophthalmoscope, laryngoscope and otoscope have to be used, considerable practice is required before the operator can distinguish the abnormal from the normal, or rightly interpret pathological appearances. In one of my earlier cases I recollect thinking I had (after a careful inspection) to deal with a tumour or growth, but which a colleague pointed out was in reality a protruding or prolapsed ureteral orifice. The truth of this was confirmed partly by its position, and more certainly by the recognition of an opening at its summit, out of which a muddy fluid was seen to escape. In the female a larger tube and lamp can be used, giving a larger field of vision. I have had two cases in women in which, after determining the presence of a papilloma by means of the cystoscope, I have dilated the urethra, and in one case removed the growth by means of the finger-nail, and in the other with the aid of a small wire snare.

Although there has been a great advance in this section, the treatment of carcinoma of the bladder and prostate has made but little progress. Its presence can be diagnosed earlier and with greater certainty, but surgeons in this country do not seem to be at all keen on undertaking its removal. Indeed, Sir Henry Thompson is strongly against any attempts at removal of either vesical carcinoma or sarcoma.

The cystoscope has taught us that, of all tumours of the bladder, the carcinomata are, unfortunately, the most frequent—just as in the case of its neighbour, the rectum. The pity of it is that, in the case of the bladder, they are not so easily removable. From what I have seen, I should say that in the majority of cases the disease occurs at or near the neck of

the bladder, or else close to a ureteral orifice, and this seems to be the general experience.

For the removal of papillomata, as well as for the application of caustics and astringents directly to ulcerated patches, the suprapubic route not only gives light, but more space than perinæal cystotomy.

During the past few years the surgery of the kidney has become quite an important branch. Some seventeen years ago, when I was house surgeon at St. Bartholomew's, surgeons limited themselves to opening and draining perinephritic abscesses; but such a thing as cutting into a kidney for the purpose of removing a stone, to say nothing of removing the kidney, was by most considered quite unjustifiable. In Holmes's "Surgery," 1875, under the heading of nephrotomy, one finds the following passage:

"The diagnosis and treatment of calculus in the kidney come rather within the province of works on medicine. The surgeon is sometimes consulted as to the possibility of removing a stone from the kidney (or, perhaps, more accurately speaking, from its pelvis), and the attempt may be justifiable under certain circumstances, but hitherto it has ended in disappointment."

As to the removal of the organ, either for injury or disease, not a word is said! How different nowadays. Nephrotomy, nephrolithotomy, nephrectomy, and nephrorrhaphy for floating kidney, are well-recognised operations, and are performed almost daily.

If symptoms point clearly to stone in the kidney, it is the duty of the surgeon to cut down upon the organ and to explore. Should he feel a stone, he may remove it either by cutting through the renal substance, or by opening the pelvis. If, however, nothing is found, let not the operator despair, for the patient may be completely relieved of his symptoms by this exploratory operation. This has twice occurred to me. In one case the patient passed a large number of small calculi on the day following, although I could discover none at the time of operation. I had subjected the organ to a considerable amount of manipulation, and presumably the calculi were squeezed into the pelvis, whence the urine carried them away. In the other case, although nothing was found, complete relief to symptoms followed. I can call to mind several instances of this, both in St. Peter's and in this hospital. It is a curious fact that all the symptoms of stone in the kidney may be present and yet no stone may be there; whilst, on the

other hand, a large stone may give rise to nothing more than a slight constant pain in the lumbar region. As an instance of this: on the last occasion I cut down upon the kidney I found a mulberry calculus of the size of a small walnut, which I removed from the pelvis. I was in some doubt as to the presence of a stone, for, although pain was present, it never ran down towards the testis, and there was no hæmaturia.

Nephrotomy for abscess, pyonephrosis, and calculous pyelitis, is often most successful, and should, I think, be resorted to before extirpation of the kidney is thought of. In support of this view I could, did time permit, relate a case in which a pyonephrosis developed some years after litholapaxy had been performed by myself in this hospital for the second time, and which got completely well after free incision and drainage.

The chief subject of contention which is occupying the surgical mind in this department at the present day is: Which is the better route to take for nephrolithotomy and nephrectomy cases, viz., the abdominal, advocated by Mr. Knowsley Thornton, or the lumbar, whose foremost champion is Mr. Henry Morris? Most surgeons, I believe, favour the lumbar operation as being the safer. It is the one I have hitherto always employed myself. As to nephrectomy: It appears to be indicated in non-malignant neoplasms, in early tuberculosis, and possibly also in carcinoma in an early stage. It should not be resorted to until after a fair trial of other means in injuries, hydronephrosis, floating kidney, calculus, and all suppurative lesions. It is of a certainty contra-indicated in disease of both kidneys and in advanced tuberculosis and carcinoma.

Nephrorrhaphy for floating kidney appears very successful, but, personally, I have not been fortunate enough to meet with a suitable case.

The surgery of the urethra has made some advance in special hands, though not so much amongst surgeons generally as was to have been anticipated on the introduction of the electric urethroscope and of electrolysis. In the diagnosis and treatment of chronic urethral discharges the electric light is a great boon, and by its aid we can carefully examine the first six inches of the canal, *i.e.*, as far as the triangular ligament. In gleet of over six months' duration, if no meatal contraction nor stricture is present, it will usually be found that the discharge is due to a granular urethritis in the bulbous urethra, and for the cure of which a few applications of a

strong solution of nitrate of silver through the urethroscopic tube often suffices. In private practice it will be found that all instrumentation of the urethra is much facilitated by the preliminary injection of a cocaine solution, 5 per cent. being amply strong enough. Owing to its anæsthetic properties, one may do pretty well anything to the urethra, from the simple passage of a bougie to internal urethrotomy, without the patient feeling any pain. Cocaine is also of much value in distinguishing between organic and spasmodic stricture. As an example of this, I will quote shortly the following case :

‘ Mr. L——, æt. 25, was said to have suffered with stricture in the deep urethra for two or three years, and for which he had learnt to pass for himself steel bougies, from No. 9 to No. 12. He had recently contracted a fresh gonorrhœa in Norway. This soon got better under sandalwood-oil internally and frequent irrigation locally. As he said the stream was getting small, I thought it well to pass an instrument; but not a bougie of any kind, from a filiform French to a No. 12 steel (English), could I get through, nor were the efforts of the patient himself any more successful. Suspecting spasm, I promised him that, after an injection of cocaine on the morrow, I should get a good-sized instrument through. And so it turned out; for, after an injection of a 5 per cent. solution, I passed a No. 12 steel (English) with the greatest ease. His stricture being evidently pure spasm, I strongly advised him to discard all bougies for the future, and for the same to substitute, if need be, an injection of cocaine into his deep urethra.

It seems, however, that the use of this drug is not altogether devoid of risk even when held in the urethra for a short time only, judging from accounts which appear in the journals from time to time. Although employing it nearly every day, I have never met with any ill effects from it; though in one case the patient, a medical man, by the curious feeling he experienced in the region of the diaphragm, could always tell when it was taking effect.

But to return to the subject of gleet (by which I mean the escape—often in the morning only—of a milky-white or of a gummy discharge), if no lesion is found with the urethroscope, by means of which instrument the whole of the bulbous and penile urethra can be explored, it is pretty clear that the seat of the mischief must be in either the prostatic or membranous divisions, and to these points must our attention be turned. In such cases, on the whole, the most successful treatment is

the application of a strong solution of argent. nit. by means of a perforated silver catheter containing a sponge, which is known by the name of Dick's catheter. I will not burden this address with the details of cases, or I could give you several in which the gleet has lasted for two or more years, where this treatment has been attended with the happiest results. The point on which I now wish to lay stress is that, prior to the invention of the present urethroscope, the treatment of chronic urethral discharges was most uncertain, as the surgeon had no reliable source of information as to the whereabouts of the congestion, granular patch, or ulcer, for neither the patient's sensations nor the passage of the acorn-shaped exploratory bougie could be depended upon for locating the seat of the mischief, cases of stricture, of course, always excepted. I cannot help mentioning one very interesting case of chronic purulent discharge from the urethra which came under my care after armed bougies and every conceivable kind of injection had been used in vain. With the aid of the urethroscope I was able to discover the orifice of a dilated follicle about three inches from the meatus, from which a drop of pus was seen to exude. By means of a long and fine dental syringe I was able to inject a strong solution of caustic, and a rapid cure followed.

Electrolysis as a cure for stricture, and about which a good deal has been written, chiefly in the United States, does not seem to have "caught on," as they say in this country. Newman, of New York, appears to treat all stricture cases by this method, and counts his cures by the hundreds. On the other hand, Keyes, of the same city, considers that he has given it a fair trial, the result being that he finds it of no use whatever. My friend, the late Dr. Steavenson, and Mr. Bruce Clarke, one of my esteemed colleagues at this hospital, were, I believe, the first in England to take it up, though very shortly after Mr. Fenwick and myself gave it a good trial at St. Peter's. Dr. Steavenson was, I know, at the time of his lamented death, still one of its warmest advocates, and Mr. Bruce Clarke is still practising it with success.

The first series of cases, twenty-four in number, in which I tried it were chiefly hospital cases, and of a severe type, *i.e.*, they were what are called resilient or non-dilatable strictures. Of these cases there was only one in which no improvement took place. Two were apparently cured, *i.e.*, six months after all treatment had ceased no stricture was to be discovered. The rest derived considerable benefit, so much so that many

ceased to attend, having been furnished with a No. 22 French bougie to pass themselves. In other words, the same position had been attained as after an internal urethrotomy, and this without any risk to life or loss of work. I must mention that two of these cases have since relapsed. For one, I have performed internal urethrotomy, and for the other a small French bougie is being passed, until the time comes when he can get a week's holiday; he will then be admitted for urethrotomy. Both these cases had omitted to pass a bougie on ceasing to attend.

This method needs a considerable amount of patience and a large expenditure of time, and it is on account of this latter that I have been compelled to give it up in hospital practice. In "private," however, I am in the habit of using it in carefully selected cases, and I may at once say with much success. I do not strive after a complete cure. By cure, I mean not only a complete restoration of the normal calibre of the urethra, but also total abolition of all tendency to recontraction. This might possibly be attained if patients were willing to continue treatment over many months. However, I am content if they can, after several sittings, pass a No. 12 steel sound or a 22 French bougie without difficulty for themselves at stated intervals, and if they are at the same time free from any symptoms of stricture. Ordinary simple cases of stricture which can be satisfactorily enough treated by dilatation with bougies I have never subjected to this treatment; had I done so, I might also, possibly, as Newman, counted the cures by hundreds. I look upon it as a substitute for urethrotomy for cases of non-traumatic and resilient stricture situated in the deep or fixed urethra. Strictures of the meatus and of the penile urethra are, in my opinion, unfit for this treatment, and they can be far more expeditiously and better treated by cutting. The reason that strictures of the deep urethra are so amenable to electrolysis is, I strongly suspect, that they are so frequently partly spasmodic in character, and this element of spasm is allayed by contact with the negative pole, through which is passed a continuous current at about 5 m.a. current strength. I have lately had some very striking examples in private practice of the beneficial effects of this treatment in cases of long-standing stricture, accompanied by all the well-known signs of this affection. In no case has any ill result followed, but, on the contrary, all symptoms have been relieved, and the patients are now passing their own full-sized bougies.

In one of these cases, a gentleman who had undergone internal urethrotomy by Otis, of New York, as well as at the hands of an eminent specialist in London, on consulting another surgeon as to the value, if any, of electrolysis, received this answer, "I will eat my hat if electrolysis can cure you," or words to that effect. In spite of this adverse opinion he came, his stricture only admitting a No. 12 electrode, and in seven months, or in about ten sittings, a No. 26 passed with ease. The curious part of this case was the fact that previously all instrumentation had been attended with much after-pain and irritation, giving rise to priapism, etc., and on which account he often omitted to pass a bougie. On the other hand, it never occurred after the passage of the electrode, which seemed rather to soothe than otherwise. Whether this surgeon has yet made a meal of his hat I cannot say ; but if he has, it must have agreed with him, as I saw him the other day in the best of health.

It is only when a stricture is found to be non-dilatable to ordinary bougieism that some other form of treatment has to be considered. Before the period at which electrolysis was taken up, internal urethrotomy was often attended with considerable risk, either from hæmorrhage or from urinary fever and suppression. Statistics showed that in several of our London hospitals the death-rate varied from 5 to 10 per cent., and even higher. To find some method of treatment fraught with less danger was, therefore, the aim of the surgeon, and partly on this account it was that I put electrolysis to the test. Since then, however, by the careful use of antiseptics, the supervention of urinary fever after internal urethrotomy has much diminished, so much so, that the mortality in my practice is now not much over the rate of 1 per cent. Thus the great need for electrolysis as a less risky method has passed away. The great decrease of urinary fever following the use of antiseptics locally, and when given by the mouth with the object of sterilizing the urine, goes far to prove that urinary fever is due to septic absorption, and is really a form of blood-poisoning, and is not to be looked upon, at all events in most cases, as due to nerve irritation.

During the period under consideration therapeutics also have not stood still. Many new drugs have been brought forward, but of these I will only mention those which I have myself found of use. Mention has already been made of the debt we owe to antiseptics for lessening the chances of septic absorption after urethral and vesical instrumentation.

Of those employed locally, *i.e.*, for vesical or urethral ablu-tion, sublimate solution from 1 in 6,000 to 1 in 10,000 must rank first. And closely following comes boracic acid, both as a wash and, when given by the mouth, with a view to sterilizing the urine. A very weak solution of permanganate of potash is also very useful for cleansing the bladder in cases of chronic cystitis, especially when followed by the injection of a little powdered iodoform and mucilage.

Salol given internally is useful for purifying the urine in the same way as boracic acid, and I make it a practice now to put all internal urethrotomy cases upon one or the other (the former in 5 grain doses, and the latter in doses of 10 grains, thrice daily) for some few days before the operation.

I have found considerable benefit from injections of lactic acid, 1 in 100, in cases of tubercular ulceration. It relieves the pain and lessens the amount of mucopus in the urine. I have already alluded to the use of cocaine in urethral work, and I have narrated a case illustrating its value as a means of deter-mining the nature of a stricture. In bladder-work it is often of very great use, not only for relieving the pain in ulceration, but as a substitute for general anæsthesia in litholapaxy for small stones.

As a solvent for uric acid, urates, and also for phosphates in certain cases, I know of nothing to touch piperazine ; but its present high price excludes it from general use, excepting amongst the wealthy class. For pyouria, and in cases of irritable bladder, accompanied with alkaline urine, benzoate of ammonium, combined at times with boracic acid and buchu, is of very great value. For controlling sexual excitement the monobromide of camphor is most efficacious, whilst Kennedy's *celerena* in sexual debility is often attended with marvellous restorative powers.

Pulsatilla in cases of acute orchitis I have tried, but without any very definite results. In nocturnal incontinence of urine, where no obvious source of irritation exists, and where drugs and moral and hygienic measures have failed, I have seen the best results from the application of the continuous current.

For urethral discharges, amongst the most efficacious injections are the permanganate of zinc, an eighth of a grain to the ʒj, and the extract of Canadian pine, ʒj to ʒj. And here I may say that I am a firm believer in the local treatment of urethritis, preferably by means of irrigation from behind forwards with some mild and non-irritating antiseptic, as, for

instance, the biborate of soda, for which may be substituted, after two or three days, any other wash the surgeon may think most appropriate. For this irrigation to be properly and frequently enough carried out, it is advisable to keep the patient to his bed or room for a few days.

Gentlemen, in the remarks I have just had the honour of bringing before you, whilst endeavouring to touch upon most of the work which has been done in urinary surgery during the period under review, I have naturally laid most stress on matters which have come more directly under my own observation, and possibly in these you may have noticed some personal bias. The subject is too big a one for me to go thoroughly into every branch in the time at my disposal, even were I capable of it.

Nevertheless, sufficient has been said, I think you will admit, to warrant the assertion that in no former period has so great an advance in urinary surgery been made. Whether this rate of progress will be maintained during the next twelve years is a problem which time alone can solve.

In the words of Longfellow :

“ Let us then be up and doing,
With a heart for any fate ;
Still achieving, still pursuing,
Learn to labour and to wait.”

On the proposition of *Dr. Travers*, seconded by *Mr. Lawrence*, a hearty vote of thanks was unanimously accorded to *Mr. Edwards* for his interesting and instructive address.

Meeting held Friday, November 4th, Mr. F. Swinford Edwards, F.R.C.S., in the chair.

Mr. F. Benham showed a large ovarian cyst to which the vermiform appendix was adherent. In operating hæmorrhage from the appendix was so severe as to necessitate its ligature and removal.

Dr. Crombie exhibited the heart from a case of ulcerative endocarditis, of which he read the notes. The patient was a

young man and an athlete, and the symptoms came on after a "sprint." The temperature was never high, neither was pericardial friction audible at any time.

Dr. Thudichum read a paper on

GALL-STONES: THEIR ORIGIN, NATURE, AND THE TREATMENT OF THE DISEASES WHICH CAUSE THEM, AND THOSE TO WHICH THEY GIVE RISE.

The monograph on "Gall-stones," which, published in 1862, obtained at the time a considerable amount of attention and success, was based upon extensive original research, and included a survey of the literature of the subject. This latter task involved a critical consideration of data which were current in didactic medical literature, and a thorough expurgation of texts. Amongst many scientific questions which had to be then treated I will quote as an example only that regarding the ages at which gall-stones occur in the human subject. It was stated in most of the books that these concretions occurred in "infants," and Soemmering's work on gall-stones was quoted as the authority. On reading the original account of the case, for there was only one quoted before the statement became a general assertion, I found that the alleged *infant* was in reality an *infanticide* of adult age (the gall-stones were met with "*in vesica fellea infanticidæ*"). This was an example of the misstatements requiring correction, and I quote it as a proof to you that my emendations were not only broadly justified, but absolutely necessary to clear the ground of grievous misapprehensions. The like of these occurred literally by hundreds, and in the work of Frerichs there are chapters of which every line contains a mistake of the same magnitude, whatever the subject to which the text is supposed to refer. However, our present practical result concerning the point adduced is, that gall-stones do not occur in infants or children, and very rarely in persons under puberty, and that whatever amount of epigastric spasms they may suffer from, a gall-stone is excluded from amongst the probable causes.

I have proved by my researches in an incontrovertible manner that the first cause of that form of gall-stone disease which is by far the most frequent was an affection residing mainly in the bile-ducts up to their finest ramifications; *a catarrh of the mucous epithelium and glands* of these channels,

which caused these linings to be shed and to be concreted in the shape of *casts of the biliary ducts*. These formations were



the exact analogues to the casts of the uriniferous tubules of the kidneys, which are so massively formed in acute as well as

chronic nephritis. I lay before you the accurate representation of the microscopic appearances of these casts as they were taken out of the middle of perfectly fresh gall-stones. They are impregnated with products of decomposition of the bile, colouring matter combined with lime, lime salts, of fatty acid and cholic acid, all in very small quantity, but sufficient to bind the epithelia together in their original apposition, and to make them somewhat thicker than their original dimensions. They are magnified $\times 180$.

The causes of the catarrh of the biliary passages are manifold, amongst them most frequently *mental emotions*, fear, terror, anger, fainting, actual syncope, particularly when the individual who suffers the emotion has had a copious meal. In an instant the epithelia of the intestinal tracts from the tongue to the colon are more or less affected, become white, thick, and are cast off in patches. If vomiting or diarrhœa supervene, the evil is cured much sooner than in the cases where this reaction does not take place. In a similar manner all other causes which produce indigestion are capable of inducing catarrh of the biliary passages.

The catarrh now leads almost invariably to the entrance of *bacteria* from the side of the duodenum, of bacilli, such as are the ordinary concomitants of putrefaction. They can be evolved, revived, and propagated from the matter in the interior of gall-stones, and studied as to their effects, by artificial culture.

Foreign bodies are amongst the rarest of the causes of gall-stones; a fluke, an ascaris, a needle, a plum-stone, have each been observed once as nucleus of a concretion; the plum-stone had penetrated into the liver through a gastric ulcer, the parasite had entered through the common duct, as flukes always do. *Flukes* rarely, if ever, are the cause of gall-stones; in the hundreds of dissections of sheep's livers which I have made I have mostly met with sometimes enormous dilatation and incrustation with carbonate of lime of the gall-ducts, but never with a gall-stone, or biliary impregnation of the hardened tubes; it is the dilatation and hardening of the tubes which causes compression of the portal vein and the subsequent dropsy of which the sheep perish.

The causes of the catarrh of the bile-ducts which lead to the shedding and concretion of the epithelium are more or less hypothetical, and are in action at a time long anterior to the appearance of any symptoms of the existence of concretions, and frequently lead to no local symptoms at all, just as the

greatest number of gall-stones exist quite unperceived, at all events in the human gall-bladder. The catarrh leads to no mechanical consequences if there be no obstruction to the flow of bile, and even with obstruction no calculi are formed without accessory decomposition of the bile under the influence of bacteria. We know of many cases of jaundice caused by obstruction through calculi, but we know also of many cases of jaundice by obstruction of the bile-duct, in which no decomposition of bile, and no formation of any concretion, has taken place.

Amongst the many morbid conditions which have been alleged, I should say imagined, as *causes* for the formation of gall-stones none is older and less founded than that which is termed *inspissation of bile*. Indeed, this hypothesis has been sustained by otherwise accomplished physicians quite lately. But it does not require any long refutation. Gall-stones do not consist of *inspissated bile*, but of a *selection of decomposition-products of bile*, which decomposition-products are deposited on the concretion in the order of their insolubility in decomposed bile. Moreover, you may inspissate bile as you please, without ever obtaining a deposit.

There are some other desperate pathologists who assume gall-stones to arise from *increased metabole*, as it is termed, and consequent excess in the bile of metabolic products, which are assumed to fall out of solution after secretion from mere excess. This notion is, indeed, for a moment only applicable to human gall-stones, consisting mainly or purely of cholesterin; it evidently is contradicted by the presence of the abnormal ingredients, which could not be supposed to have been secreted by the liver. The hypothesis of the increased metabole is even less tenable than that of the inspissation. Both hypotheses require you to shut your eyes and mind to the broadest facts, and on this ground, I, for my part, reject them unreservedly.

Let us look for a moment at *the composition of the bile*. This subject alone ought to be considered at length if time permitted, because even teachers of physiology and pathology have either very deficient or very erroneous notions about it. And here I must insist upon the caution not to confound with each other results obtained by examination of the bile of man and various animals. Each statement of a fact concerning bile must be accompanied by a statement of the animal from which the bile has been derived. Human bile contains cholesterin, ox bile does not; human bile contains a peculiar

colouring matter, namely, bilifuscin, which is brown in the gall-stones, ox bile does not contain any; human bile contains two colouring matters side by side, namely, bilifuscin, the red bilirubin; this latter is the only colouring matter obtained from ox bile, and as yet by putrefaction only. The biliary acids in ox bile and human bile are identical, but these acids differ greatly in composition in other animals; they are specific in the pig (hyocholic acid), which also has a peculiar pigment, in the goose (chenocholic acid), and in others (*e.g.*, the hedgehog), and probably in many birds; the colouring matters are still more varying in different classes and species of animals, as we have ascertained with the aid of the spectroscope and chemical reactions. Human bile, then, contains two specific colouring matters, *bilifuscin* and *bilirubin*; two specific acids, *glycocholic* and *taurocholic* acids; an alcohol, namely, *cholesterin*; an alkaloidal body in the shape of a *phosphatide*, with four atoms of nitrogen upon one atom of phosphorus; and possibly small quantities of *fatty acids*, besides *inorganic salts*, amongst them phosphates and carbonates. The pigments are dissolved by means of *soda*, the specific acids also, mainly by *soda*, with little potash (in codfish bile the solvent is mainly potash).

When physiologists tell you that bile (meaning ox bile) contains *lecithin*, they leave the basis of fact altogether. I have challenged one of them to produce the proof or any proof, and he has remained silent. He had no proof, neither have his colleagues any who make similar statements, neither have the so-called physiological chemists any such proof. It is a mere inference from Strecker's finding of *cholin*, wrongly supposed to be identical with neurin. Then whenever they find a little phosphorus they cry "*lecithin*," as if we did not know a dozen phosphatides differing widely from lecithin, and as if it were not proved that the phosphatide from ox bile, the only one which has ever been isolated, is a tetrapolar alkaloid and differs *toto cælo* from lecithin.

I must warn you not to put implicit faith in any of the statements of modern physiological chemists, so-called, and of chemical physiologists either. Most of their so-called researches are a tissue of fallacies. Look at the so-called *anthropocholic acid*, which issued from the Strassburg Laboratory of Hoppe-Seyler. It was mere common cholic acid, as I had to prove by analysis of the crystallized salts of human cholic acid. Look at all the chemical confusion concerning bilirubin, in which the names of Städeler, Maly, Capranica,

and others, are involved; they first endeavoured to throw suspicion on my researches; when the two authors first mentioned could not resist them any longer they dishonestly appropriated their results. The late Austrian professor Maly, editor of an annual report on animal chemistry, converted the contents of a private letter of mine into a paper of his own, and communicated the plagiarism to the Imperial Academy of Vienna, in the Transactions of which it stands printed. Some of these so-called physiological chemists romance as glibly as any male or female anti-experimental obscurantist, and gall-stones have been amongst the favourite objects of such practices, particularly out of revenge for my having been obliged to expose the numerous and colossal errors contained in books concerning the disease we are considering.

My researches, which are originally published in the *Journal of the Chemical Society*, and in the *Proceedings of the Royal Society*, have proved that *ox bile*, by putrefaction, becomes slightly acid (bile is mostly neutral or faintly alkaline), and deposits bilirubate of lime, palmitate of lime, and free cholic acid, besides crystallized phosphate of lime. Now, *ox gall-stones* mainly consist of bilirubate of lime, palmitate of lime, free cholic acid, and phosphate of lime, besides a few other matters not essential to the concretion. In the livers of cows I have found the casts of biliary ducts, organized like coral-trees, the result of the shedding and degeneration of the epithelium of the ducts. Now, the reaction which the ox bile gives out of the body being possible in the body, and the products being identical, is there any other inference possible but this, that the processes which yield the products are identical? I have come to that conclusion, and still hold fast to it, until a wiser man, on the basis of better work than mine, if he can produce it, shall give a more likely theory.

Human bile, by putrefaction, to which it is excessively prone, deposits cholesterin, bilifusate, and little bilirubate of lime, palmitate of lime, and cholic acid. Of cholic acid there is always but little, because it is not very insoluble, and because most of it is altered into so-called choloidic acid the insoluble anhydride of cholic acid. Inside of these ingredients are the casts of the biliary ducts, and the cholesterin takes the lead in the formation of the crystalline arrangement. Here, also, I say that the evidence of the contents of gall-stones being products of putrefactive decomposition of the bile are overwhelming. But the process is by no means simple, for to derive, for example, the *palmitate*,

it is necessary to know that the phosphatide yields by chemolysis with baryta, not palmitate, but stearate, pure stearate; but by putrefaction palmitate, pure palmitate—in fact, the putrefactive process splits up stearic acid into acetic and palmitic acid, just as fusion with caustic potash splits up oleic acid into palmitic and acetic acid; oleic is thus very nearly an isomer of stearic acid; and as I have discovered four isomers of stearic acid, oleic acid, if its formula were to admit of adaptation, might be a fifth. Now, it is the formation of this molecule of acetic acid which causes the bile to become slightly acid, and deposit the substances which form the deposits and the calculi. A subsequent access of alkaline bile explains the presence of the earthy bases.

In a late surgical publication on gall-stones occurs the following sentence, comprising all that is there said on this important subject: “It is held by Naunyn that chemical alterations as mentioned by Thudichum, which are supposed to lead to the precipitation of certain substances in the bile have not been substantiated; and that it is untenable to look for the formation of gall-stones in the decomposition of the bile.” Such an utterance in so peculiar a form of diction, and entirely unsupported by any research whatever, unsupported by any argument on the matters of fact, of which this utterance itself cannot deny, or even qualify, modify, or displace a single one, is not of the slightest value; but its danger to science is evident by the fact that it has been repeated by this surgical writer. Of course, the main injury accrues to the writer himself in his having adopted a fallacy; but if he wanted to criticise my work at all, he should have at least studied it, and not merely repeated the inanities of a clinical assistant in search of matter to serve as a means of revenge for the defeat of his patron in former gall-stone discussions.

The medical part of the discussion on gall-stones, be it pathological or chemical, has made little progress of late years; for example, no author mentions that bilifusate of lime is the principal pigment of many human gall-stones. I almost believe that none mentions bilifuscin at all; the fallacy about the phosphatide I have already shown; all the formulæ of the pigments, of their transformations and compounds, are absurdly wrong. After this, how is it possible that we should have any approach to a notion on the *function of the bile*? The bile is a specific product of the largest gland of the body; in its cholic acid nucleus it contains a radicle of

the aromatic class, not yet isolated, but related to the radicle of cholesterin ; it contains a sulphurized body, a highly complicated phosphatide ; by these bodies, namely, an alcohol, a tetrapolar alkaloid, a neutral or feebly acid sulphurized body, bile resembles to a division of the ingredients of the brain, in which analogous bodies are deposited or distributed in a soluble liquid state. And if our notions of the functions of the bile are thus confused, how can we hope to have any useful view of *the function of the liver*, and how can we presume to give cholagogue medicines so-called when the ingredients of the bile do not occur in the body, nor in the tissue of the liver itself, but are made, produced, initiated, by a specific synthesis of the protoplasm of the liver-cells? Is it not at first sight unreasonable to assume that a compound substance of so much specificity, produced with so much vital energy and such an extensive vital machinery, should be prepared merely to be expelled from the body? The view becomes the more unreasonable the deeper you study the subject from the chemical side. But the chemistry applied to its investigation must be science, and not that counterfeit which builds up fanciful connections by false formulæ, and thus derives (as, *e.g.*, Bunge does in his late work) bilirubin from hæmatin by a supposed metabolic process, or coaches the cholesterin of the blood corpuscles through blood and liver into the bile (a supposed mere transfer from one place to another), but leaves all other questions concerning the origin of the bile-acids and the phosphatide quite untouched.

Just as the pathology of gall-stone disease has made no progress of late years, so its medical treatment in its various recognisable phases has also remained in the state in which it was a century ago. In this the treatment with olive-oil or with massage, claiming to effect a mechanical extrusion of the gall-stones, has altered nothing. I had recognised the difficulties of medical treatment mainly by the almost invariably injurious effects which many of my patients experienced from the use of Carlsbad waters. It was then that I proposed to revive Petit's operation for the removal of impacted as well as loose biliary concretions. That was at the time when a man who excised an ovarian tumour, or a diseased kidney or spleen, was spoken of in terms similar to those which we now find to be applied to scientific research in the vocabulary of the old fight between obscurantism and science. However, the progress of abdominal surgery has wiped this opposition

away, and we now remove gall-stones by *operation through the abdominal wall*, and restore many patients to comfort and relative health.

Cholecystotomy is, in fact, a relatively simple operation, and is generally the more certain of success the more pronounced are the mechanical features of the calculi. It involves an incision into the right abdominal wall just below the cartilage of the ninth rib, in a perpendicular line, and from three to four inches in length, according to the thickness of the wall and the depth at which the operation has to be completed. The actual position of the incision has to be varied from this in cases where there is a biliary fistula opening on the abdomen, and in those where there is a tumour of the gall-bladder; in the latter case the incision has to be made on the most prominent part of the tumour. The gall-bladder being felt, and the digital explorations being completed, the bladder is secured by tenacula, drawn into the wound, and opened; in case of expansion by liquid it has to be evacuated by aspiration before being incised. Any gall-stones will now be removed with a forceps passed into the bladder guided by the finger outside. Calculi fixed in the cystic duct may be manipulated towards the bladder; if they do not yield they will have to be *crushed* gradually by a forceps in the bladder, or by a guarded forceps out of it acting through the walls of the duct. This kind of *chololithotrixy* may also be applied to calculi fixed in the common duct. The crushing blade of the forceps should be guarded with thin cork plates, which are less liable to slip than caoutchouc linings. A certain amount of force for the crushing of the calculi inside the ducts may not be exceeded, to avoid dangerous injury by bruising the ducts; sometimes calculi may be broken by a pin or needle inserted through the ducts; in cases where the crushing does not succeed, or appears dangerous, the duct must be incised, the stone removed and the duct closed again by suture. The fragments of crushed calculi may be worked forward to the duodenum or backward into the gall bladder. Care must be taken not to mistake erratic calculi, which have left the common duct, and lie in separate pouches, sometimes projecting into the duodenum, for calculi in the common duct. Such erratic calculi occur only in cases in which the calculous disease has lasted many years; an elastic catheter, or even a pure silver probe, passed along the ducts into the duodenum will help to establish the diagnosis of the perviousness of the passages.

In cases where the gall-bladder is degenerated, and can apparently not be saved, it must be excised after ligature of the cystic duct. This *cholocystectomy* is a difficult operation, and requires great care not to wound the underlying liver. It should never be resorted to when the mere cystotomy is effectual in removing the stone. The bladder must be separated by tearing and detaching with the blunt end of the handle of the scalpel.

As cholocystectomy is sometimes desired to make an end of a persistent biliary fistula, and as it is on the whole a risky and undesirable operation, it is well that there should be an operation which can sometimes take its place, namely, *cystenterotomy*, an operation whereby the biliary fistula is diverted to a part of the small intestine; it is, however, still more risky than cystectomy.

Thus our means to deal with gall-stone disease in all its later phases have been admirably increased and improved. The number of cases requiring or admitting of operative relief will, however, always be only a fraction of the cases coming under our observation, and there will be a greater fraction of these cases in which the concretions cause no local symptoms, but remain unobserved during life.

There is reason to believe that gall-stone disease may sometimes be *endemic*. In an admirable essay on "Gall-Stones in the Insane," by Mr. Cecil F. Beadles, Assist. Med. Officer, Colney Hatch Asylum, the author records that he found in fifty consecutive necropsies on insane females gall-stones in eighteen, or in 36 per cent. of the cases. In other institutions of this class only ten to twelve of hundred autopsies reveal biliary calculi. The average of all bodies in an anatomical institute yields a little over 6 per cent.; of these two-thirds, *i.e.*, 4 per cent., are females, 2 per cent. are males.

I can hardly doubt that gall-stone disease has a general *chemical connection* with *chronic brain disease* ending in mental derangement, and that Mr. Beadles' hypothesis given on p. 16 of his essay may be correct. Our most frequent care will have to be bestowed upon patients who labour under an attack of *gall-stone colic*, the pains caused by a gall-stone having become fixed in the cystic, or common duct, and being driven along by the peristaltic action of the duct, and the pressure of the bile secreted behind it. In these cases subcutaneous morphia injections are of the first importance, as they relieve both pain and contraction of the duct.

The *severe vomiting* accompanying the impaction of the

stone, which has not yet received any adequate physiological explanation, is also relieved thereby. When the stomach is very empty it is well to let the patient drink large volumes of warm water flavoured with lemon-juice; this allays the spasm and diminishes the torture of useless retching. I have placed patients under chloroform anæsthesia when collapse was threatening, and the result aided the morphia so as to stop the attack entirely.

The title of this paper claims to include a discussion of the treatment of the original disease which gives rise to gall-stones, but time does not permit me to touch that subject. It is closely connected with the consideration of *intestinal catarrh*, and very important. In the treatment of every such case of catarrhal indigestion it should never be forgotten, but always be remembered, that it may lead to gall-stones; however remote may be the period of their discovery from that of their formation, the connection is indubitable.

In the discussion which followed its reading,

Dr. Campbell Pope drew attention to the difficulties which frequently attended the diagnosis of gall-stones, especially in those cases where there appeared to be a chronic impaction of bile.

Dr. Crombie referred to the treatment of gall-stones by large and continued doses of olive-oil, as practised in America.

Dr. Masters and *Mr. Benham* having spoken, *Dr. Thudichum* replied.

Dr. H. Sutherland read a paper on

THE PREVENTION OF SUICIDE IN THE INSANE.

Statistics showed that only one case out of 222 patients who were suicidal on admission succeeded in committing the act, the remaining 221 having been prevented from doing so by the vigilance of their attendants. The duties of the superintendent and attendants of the suicidal insane were to keep a careful and constant watch upon all medicines, plasters, and disinfectants. To keep keys, razors, knives, forks, fireirons in places of safety. To impress upon visitors the necessity of not leaving poisonous substances about, or introducing scissors or edged tools into the asylum. Attempts at hanging might be prevented by keeping out of the wards all nails, wires, ropes, sash-lines, bell-pulls, tapes, and string. Patients with homicidal and suicidal delusions should not be allowed

to work in the shops of the asylum, where they have knives and hammers at their command. The site of the asylum should be chosen as far as possible from rivers, ponds, and railways. In the asylum itself all doors should open outwards, windows should be protected, w.c.'s should close with a ball let into the door, fireplaces must be protected by guards, taps for gas secured under lock and key, and all windows and gas-jets be placed out of reach. Patients should be watched at meals to see that they eat enough and do not take food in a dangerous manner.

Some curious weapons were exhibited made by suicidal patients, from pieces of crinoline steel and firewood and string forming a knife, and from stones tied up in a stocking forming a hammer, and other curious inventions. The paper concluded by a tribute of praise to the attendants, by whose devotion suicide in asylums is reduced to a minimum.

Meeting held Friday, December 2nd, the President, F. Swinford Edwards, F.R.C.S., in the Chair.

CLINICAL EVENING.

Dr. Rayner Batten exhibited a clinical pulse manometer, a full account of which, with illustration, appeared in the *Medical Press and Circular* for November 30th.

SPECIMENS.

The **President** showed a femur with sub-periosteal sarcoma after amputation at hip-joint in a woman, *æt.* 26. The limb was removed by the Furneaux Jordan method; primary union had taken place throughout the entire length of the wound on the ninth day, and the patient left the West London Hospital well within the month.

CASES.

Mr. Richard Lake showed a case of

CHOLESTEATOMA OF THE MASTOID ANTRUM.

The patient came under my treatment for suppuration in the mastoid antrum, which was discovered to be due, in part,

at all events, to a cholesteatomatous growth. These dead tumours, as they have not inaptly been called, are always a source of danger, as soon as they get of any considerable dimensions, from their great powers of imbibition, and the risk of septic changes being set up in the meninges of the brain, through the rapid swelling of the septic mass. The only cases I know of which equalled this in size are described by Politzer and Kuhn; the case recorded by the former died from septic poisoning set up by syringing.

The following notes of the case were kindly supplied me by Dr. A. E. Cox, of Watford, under whose care the patient was. E. W——, aged 6, was a quadroon with a bad family history of phthisis. He had suffered with left otorrhœa since he was a few months old, and has always been irritable and disagreeable. For the first three years of his life the discharge was slight and inoffensive; but has increased in quantity for the last three years, and become highly offensive, and mixed with blood at times.

History of present attack. On September 22nd, 1892, he was found to have a large abscess behind the left ear, radiating above and behind for about three inches; he was much debilitated and with a high temperature. The abscess was incised, and about four ounces of very offensive pus removed; there was no sequestrum.

On October 1st he was admitted into the Watford cottage hospital, the abscess having refilled. This was again incised, five ounces of pus removed, and the cavity was drained.

On October 9th, Mr. Stradling administering chloroform and Mr. Cox assisting, I prolonged the original incision forwards and downwards in the usual way, and reflected the periosteum. I did not find, as was expected, a perforation into the antrum at the suture (masto-squamosæ), but a patch of necrosed bone was felt here. I then rapidly removed the whole external wall of the antrum, and removed large masses of cholesteatomatous tissue, and found the antrum dilated sufficiently to admit the end of the index-finger; the tegmentum tympani was absent, and the roof was formed by the dura mater of the middle fossa.

The further progress of the case was uneventful; though there was apparent cure, there is a tendency to recurrence of the growth.

Mr. William Steer showed:

(1) A case of Friedreich's disease, which commenced at the age of ten years by difficulty in walking, especially in the dark

and on going upstairs. At seventeen walking was quite impossible, and now, at the age of twenty-four, patient is quite unable to stand. There is inco-ordination of muscles of both upper and lower extremities, and head and neck, loss of knee-jerk, and plantar and cremasteric reflexes, hesitating speech, and lateral nystagmus. One brother had died of the same disease.

(2) A case of idiopathic muscular atrophy in a lad of fifteen, commencing at the age of twelve. There was no marked atrophy of the face muscles, and labials were well pronounced. The muscles of the upper extremities were much wasted, together with the whole of the trapezius serratus and rhomboids of both sides, allowing the weight of the arms to slope the shoulders, and project the scapula from the back, causing remarkable wing-like deformities.

(3) A case of myxœdema in a male.

Mr. Keetley showed :

(1) A case of inguinal hernia complicated with undescended testicle. An operation for radical cure had been performed, and the testicle brought into the scrotum, the tunica vaginalis testis being held there by a temporary suture, uniting it to the adjacent tissues of the thigh.

(2) A case of large bronchocœle excised without anæsthetic.

(3) A case of subcutaneous *suture* of the patella (not *ligature*, as in Kocher's operation of so-called "suture," and the imitations of it).

(4) A case of wiring fractured olecranon.

(5) A case of fixation of undescended testis in scrotum.

Mr. Bruce Clarke showed a case for which he had performed nephrorrhaphy nine months previously. The operation had been undertaken because the symptoms were severe, resembling those of renal colic. In his experience these cases yielded by far the best results after operation.

Meeting held Friday, January 6th, the President, F. Swinford Edwards, F.R.C.S., in the chair.

EXHIBITS.

Dr. A. H. Weiss Clemow showed three dermoid cysts, two containing hair and calcareous material.

Mr. Richard Lake exhibited a new form of mastoid gouge.

Mr. W. Bruce Clarke read a paper upon

THE DIAGNOSIS AND TREATMENT OF SOME OF THE VARIOUS
FORMS OF CYSTITIS.

The bladder is an organ which is subject to a variety of affections of an inflammatory nature. Such conditions are all characterized by irritability, pain, and frequency of micturition; but the causes which give rise to them are exceedingly varied in their origin and progress.

If the attack of cystitis is a slight one, and is not attended by any great inconvenience, the mere rest of a few days in bed, coupled with the most ordinary attention to diet, will usually suffice to effect a cure, and the question of exact diagnosis will perhaps hardly be thought of. Suppose, however, that the subject be a child, and that urination is accompanied by severe pain and straining, together with perhaps some tenderness over the pubes, or by the passage possibly of a few drops of blood and some rise of temperature, in which direction should one's thoughts be turned? The symptoms may point to cold, to calculus, or to some altered condition of the urine, and are almost certainly dependent on one of these three causes. In such a case a piece of litmus paper is often of great assistance. It may be that the urine, especially if it be frequently passed and voided in small quantities, and if it is examined as soon as it is passed, is very highly acid, and with a little practice the rapidity with which the litmus changes will enable one to make a shrewd guess as to excess of acidity. At any rate, it can be very readily detected if one dilutes a small quantity with from six to ten times its bulk of water. Ordinary urine, when so diluted, only yields an acid reaction with difficulty, and if the litmus therefore speedily turns colour, it is certain that one has to do with an excess of acid in the urine. What has happened is that the excess of acid in the urine has irritated the tender mucous membrane of the child, and in severe cases will soon give rise to such an excessive secretion of mucus as to render the urine alkaline. The process is precisely similar to that by which a uric acid calculus gives rise to the production of alkaline phosphates, and even in the most severe cases a week or two in bed, with attention to diet and abundance of fluids, will readily effect a cure. It may be asked how does one make certain, without sounding, that no calculus is present? It is not possible to be certain in all

cases, but practically, in most instances, the diagnosis is attended with but little difficulty. The sudden onset of the case and the lack of pain, coupled with the absence of that constant discomfort which usually accompanies the presence of a stone, is generally sufficient for one's purpose. Where any doubt exists the sound will at once clear it up. In all such conditions it is probable that cold and exposure play no insignificant part, but it may well be doubted whether cold alone, without some other concomitant circumstances, ever gave rise to cystitis in a child. From cystitis of tubercular origin, and from cystitis dependent on new growths, children are, as a rule, free, and if such cases do occur, they must be distinguished by the same methods which are applicable to the adult.

It is in adult life and old age that the more inveterate cases of cystitis occur, the diagnosis and treatment of which offer so many difficulties.

In adult life the majority of cases of cystitis depend on stricture and tuberculosis, whilst the bulk of the remainder are to be ascribed to infection of some kind, either by the passage of an instrument or by the introduction of some septic fluid into the interior of the bladder from an adjacent organ.

An excellent instance of this latter variety has recently been under my care. G. S., aged 22, gave the following history of his condition. He had been in the habit of riding a bicycle, and slipped one day whilst getting on to his saddle, somewhat severely bruising his perineum. Though suffering somewhat acutely from the pain, he continued his ride, and rode some twenty miles. That evening he felt very stiff and took a hot bath. For the next few days the pain increased in severity, and the passage both of water and motions was excessively painful. A few days after this he passed some matter with his motions and the pain soon diminished, but he states that he has never been able to sit down with comfort since his accident. A week later he was seized with a violent attack of cystitis, being obliged to get up six or seven times in the night to pass water, and micturating every half-hour, or oftener, during the day.

When I first saw him his cystitis had already lasted for some ten days, and was very acute. An examination of the rectum revealed a prostate, considerably enlarged, spongy to the touch, and unduly tender. The passage of an instrument into the bladder was accompanied by considerable pain just as it entered the bladder.

It seemed most probable that his injury had given rise to a prostatic abscess, which had found its way first into the rectum, and subsequently, when the first opening had closed, into the bladder. The cystoscope was introduced in order to ascertain if any further light could be thrown on his condition. On the floor of the bladder, close behind the urethral orifice, a small, ragged hole could be detected, which was in all probability the vesical opening of the prostatic abscess, and all around the aperture was a reddened and thickened patch of localized cystitis. There seemed but little chance of effecting a cure without affording a free drain for the abscess, and accordingly lateral lithotomy was performed.

When the finger was introduced into the bladder, the ragged opening could be distinctly felt just at the termination of one's cut in the base of the bladder. The later history of the case calls for but little remark. By the time that the lithotomy wound had healed up, the prostate had resumed its natural size; there was no tenderness in the perineum, and no vestige of the original cystitis. There are plenty of instances of cystitis of infective origin, but it is not always so easy to track such cases to their source, or to attack that source even when it has been discovered.

In women, abscesses around the uterus and the remains of extra-uterine gestations, may find their way into the bladder and give rise to a severe cystitis, which may be diagnosed with ease, but can rarely be treated with success, because the drainage of such cavities is attended with the greatest difficulty. It should always be attempted, because an untreated cystitis will sooner or later eventuate in an infective pyelitis, and death from so-called surgical kidneys.

Other sources of infection are to be found in the kidneys and the intestine. In the latter case it may be the result of malignant disease, which has begun in the bowel, and has made its way through into the bladder, and the utmost that can be done is to palliate by resorting to colotomy, in order that faecal matter and wind may be prevented from distending the bladder and passing per urethram, a condition attended by much pain and distress. In rare instances necrosed portions of bone from the hip-joint or the pelvis may find their way into the bladder, and give rise both to cystitis and to the subsequent formation of calculus. Another source of infection due to the passage of unclean instruments needs but to be mentioned to be avoided. Nowadays it is more often to be ascribed to the carelessness of the patient than to

the neglect of the surgeon. Cystitis of gonorrhœal origin merits a larger share of attention than it has hitherto received. It is not a very uncommon concomitant of severe attacks of gonorrhœa, and in its slighter forms rarely gives rise to much trouble, but two instances have come under my own care in which it rapidly passed up the ureters, terminating in acute inflammation of both kidneys, and death in a few days, whilst in its slighter forms it is certainly responsible for many a case of pyelitis and pyonephrosis of unexplained origin.

A case of pyonephrosis of this nature was under my care a year or two back in the West London Hospital. E. H., aged 27, came under my care suffering from cystitis, and accompanied by the passage of a considerable amount of pus. She had been married two years, and had had no family and no miscarriage. About four months before she came under my care she had acquired gonorrhœa from her husband, which speedily invaded her bladder, and she suffered from a severe attack of cystitis accompanied by great pain in the region of the bladder and increased frequency of micturition, as well as great scalding during the passage of the water. She had, as she thought, got quite well, when one day she noticed some of her symptoms returning, and was soon after confined to bed, feeling very ill. A few days later she noticed her water was not clear, and when I examined her about a month subsequently I found the urine contained a considerable quantity of pus, and there was a largish swelling, tender to the touch, in the region of the left kidney. Some further inquiries elicited the information that her husband had also been in the hospital, and had suffered from extravasation of urine, and that a urethral discharge was present at the same time. After the wife came into the hospital, her kidney was opened and drained, and some phosphatic débris removed from it. Notwithstanding all the attempts that were made to save the kidney, it eventually had to be removed about a year later, when there was scarcely a trace of kidney substance present in it. At the present time she enjoys excellent health, and has suffered from no further urinary complications, but her husband has, I hear, succumbed to some kidney affection. The cystitis which results from stricture is well known, and rarely needs any other treatment than restoration of the urethral calibre, after which it speedily ceases.

Cystitis due to urinary tuberculosis is one of the most puzzling varieties, especially early in its course, and is often very rebellious to treatment. In the earlier stages, there is

but little to distinguish it from other varieties. The cystoscope has, however, led to its earlier recognition, and as a consequence, to improved methods of treatment. At one time great stress was laid on the importance of excessive bladder irritability as a sign of the affection, but the cystoscope has shown us that excessive irritability is only an indication of the situation of some lesion near the urethral orifice, which is a very common site for commencing tubercular disease. Other lesions in the same situation produce quite as much, if not more, vesical tenesmus. For my own part I know of no sign, or set of signs and symptoms, by which we can infallibly diagnosticate bladder tuberculosis. Suspect it we may often do, when no other signs of tuberculosis, especially in the genito-urinary tract, are present, but prove it we only can by the aid of inspection. That it may go on for a long time, and in favourable cases be ultimately cured, even when very little special treatment is directed towards it, I am quite certain, but local medication of the bladder allays the pain and irritability to which it gives rise in a very marked degree. If an inspection of the bladder reveals lesions near the urethral orifice, intravesical medication is seldom of much avail, and the supra-pubic operation should be performed.

The ulcerated patches can then be well scraped, touched, if necessary, with the actual cautery, and subsequently irrigated daily with iodoform emulsion, which is made by mixing :

Iodoform	-	-	-	-	-	-	ʒij.
Mucilage	-	-	-	-	-	-	ʒss.
Glycerine	-	-	-	-	-	-	ʒij.
Water	-	-	-	-	-	-	ʒiiss.

A drachm of this can be introduced into the bladder daily, or twice a day if necessary, after it has been evacuated and washed out. Other drugs, such as salol and iodol, may be used in emulsions, or lactic acid diluted to form a 1 per cent. solution should the iodoform emulsion fail.

If the ulcerated and inflamed surface is situated at some distance from the urethral orifice, and does not give rise to much tenesmus, intravesical medication will often produce the desired result. Before beginning it, it is advisable to have the patient under an anæsthetic, and to thoroughly wash out his bladder as a preliminary measure. Wherever it can be done without much pain, this should be repeated daily with warm water with a little carbolic, in the proportion of 1 to 150,

gradually increasing the strength. In some cases carbolic acid acts as an excellent sedative. In later life the presence of cystitis is usually of more serious import. It may be due to cold, accompanied by the presence of a highly acid urine, but it is far more likely to depend on some atony of the bladder, an enlarged prostate, or a new growth. Further than this, one should never omit from one's calculations the possibility of some constitutional affection which has given rise to cystitis. Influenza will produce it, or it may occur during the progress of acute fevers. Such conditions, however interesting, rarely present much difficulty either in diagnosis or treatment. It is quite otherwise with the chronic cystitis accompanied with atony, as an early symptom of ataxia, and it was not till they had been most carefully examined, and other ataxia symptoms detected, that the true cause of their trouble was ascertained. In such cases the bladder should be carefully emptied with a catheter daily, and if need be washed out, preferably with hot water or boracic lotion, at a temperature of 110° F., and upwards. Galvanism is often of the greatest assistance in these cases, and sometimes restores for a while the lost vesical expulsive power.

In all doubtful cases where an obscure cystitis exists, there can be no doubt of the propriety of a cystoscope examination, which may reveal a localized inflammation of the bladder wall surrounding a sacculus or some other obscure condition. An excellent illustration of a case of this nature came under my care about six months ago. The patient, a man of 52, had had several attacks of cystitis, and had been under various surgeons. He had had one kidney explored, and a suprapubic inspection of his bladder had been undertaken; but without any benefit, except of the most temporary nature. A careful cystoscopic examination of the interior of his bladder revealed a sacculus close by the left ureter, which was hazy in appearance, and evidently contained some débris. The bladder was washed out daily with hot water and boro-glyceride, and by the end of a week he was all but well. He has been instructed how to wash his bladder out once a week, and by this plan of treatment he remains in perfect health, and is able to follow his employment. There is another condition which often gives rise to considerable difficulty of diagnosis until the cystoscope clears the matter, viz., simple cystitis with hæmorrhage. It is suspected to be due perhaps to a calculus, or, if bleeding is more severe, to a new growth; but simple inspection, followed by the introduction of half an

ounce of nitrate of silver gr. j ad ʒj once a day after the bladder has been completely emptied, soon effects a cure.

One might multiply instances without number, but they all tend to the same point: the necessity in obscure cases for the fullest investigation and the importance of local treatment with astringents; and amongst such drugs there is none which in acute affections yields so excellent a result as silver nitrate, in strength varying from gr. j to ʒss to the ʒj, or even stronger.

THE EFFECTS OF EPIDEMIC INFLUENZA UPON THE URINARY ORGANS.

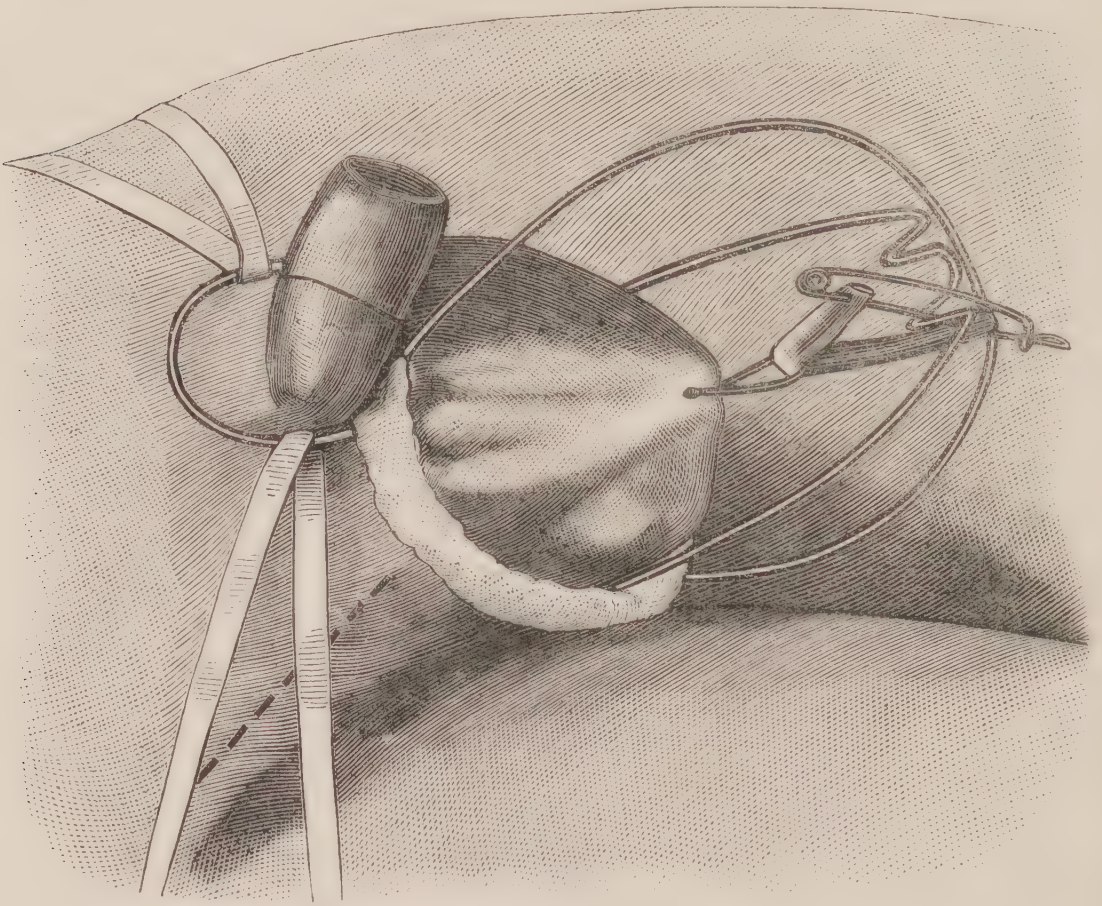
In this paper **Mr. Hurry Fenwick** submitted that the epidemics of 1890-91 and 1892 had shown that the poison sometimes implicated the urinary organs, though usually the complication appeared towards the end of the attack. From his experience of the sequelæ of influenza he could state that the disease was able to evoke urinary lesions, such as acute inflammation of the kidney, bladder and prostate. The majority of the cases he had encountered were those of inflammation of the neck of the bladder and the adjoining surface of the prostatic canal. He had also met with sharp hæmaturia, which the electro-cystoscope had demonstrated in some cases to proceed from submucous hæmorrhages of the bladder, and in two instances to arise from villous growth which had been called into activity by the disease. He had also met with a certain number of cases of atony of the bladder, the result of over-distension, which had been unnoticed whilst the patient had been delirious. Mr. Fenwick also stated that influenza increased the severity of any pre-existing urinary disease, though usually the exacerbation was transitory. He considered that an attack of influenza formed a valuable index to the stress resistance or working capacity of the kidney, and that it often proved a touchstone of real value in detecting any weak point or predisposition to disease in the urinary tract, for it was capable of awakening any dormant or apparently healed morbid condition (cases here cited). As a rule, as soon as the influenza subsided the urinary disease which it had called forth or increased also abated, but in some rare cases a distressing and obstinate genital neuralgia remained. These urinary neuralgias were indistinguishable in their clinical features from those produced in the same regions by onanism, tabes, or by severe malarial or septic poisoning.

Mr. Leonard A. Bidwell read a paper on

A MODIFIED OPERATION FOR THE RELIEF OF UNDESCENDED TESTIS.

The treatment of undescended or partially descended testis does not appear to be very definitely laid down in any work on surgery. It is generally supposed that an undeveloped testicle in the inguinal canal is more prone to malignant disease than the normal organ, therefore when an operation has to be undertaken castration has been recommended. The reason for this severe measure is afforded by the bad results of any conservative method in the pre-antiseptic days; after such operations very troublesome and sometimes fatal supuration occurred in the scrotum. When the testis can be forced out of the inguinal canal the patient may be provided with a truss with a horseshoe-shaped pad; after this treatment, which was recommended by Professor John Wood, the organ rarely descends further than the root of the penis, and often retires after the truss is taken off. The method which I employ is as follows: The incision is the same as that for the radical cure of hernia and is not carried into the scrotum. When possible the testis is squeezed out of the inguinal canal, but when this cannot be done the fibres of the external oblique have to be divided. The tunica vaginalis is then opened and divided just above the testis; if a hernia be present its upper end is dissected up, and after being ligatured at the internal ring is cut off; when no hernia is present it is simply cut away. The fibres of the cremaster are cut across and the testicle is pulled away from the cord, whilst the structures between the vas and the epididymis are carefully divided with the point of a knife. In this way the testicle becomes inverted, the vas entering at the top instead of at the bottom of the epididymis, and the vestigial remains (namely, the hydatids of Morgagni, or the end of the Mullerian duct) at the top of the normal testis are now at its bottom. The result of the inversion is that the testicle hangs about one inch and a half lower and can be placed at the beginning of the scrotum. During the separation of the vas from the epididymis the spermatic artery, veins, and nerves are divided and require ligature, but the artery of the vas, of course, is carefully saved. A finger is then pushed from the wound into the bottom of the scrotum, and a mounted needle armed with a silk thread is passed through the skin on to the finger; the thread is thereupon withdrawn from the eye of the needle,

and the latter passed through the vestigial remains at the bottom of the inverted testis; the needle is then threaded again and withdrawn through the original puncture at the bottom of the scrotum. The inguinal canal having been closed by Macewen's method, the cut fibres of the external oblique are sutured and the skin wound united by a continuous suture. The two ends of the silk thread which has been passed through the end of the testis are then knotted together outside the scrotum and are attached by means of a



piece of elastic drainage tube and a safety-pin to the crossbar of the wire cage. The accompanying engraving,* from a drawing by Mr. Leonard Mark, shows the apparatus *in situ*, and attached to it the traction thread issuing from the bottom of the scrotum. The dotted line represents the position of the incision. The cage has previously been sterilized by boiling, and strips of cyanide gauze are wound round the part which rests on the skin. It is fastened to the body by tapes

* For the publication of this we are indebted to the courtesy of the editor of the *Lancet*.

passing round the waist and thighs, which fix it very firmly, the apparatus being not at all uncomfortable. The wound is dressed with cyanide gauze and the whole cage enveloped in an antiseptic dressing. The drainage-tube is tightened up next day, and again, if necessary, on the following day; the testicle will then probably be at the bottom of the scrotum. The cage should be kept on for at least a week or ten days; when it is removed the thread is withdrawn from the scrotum.

The following are the three cases in which I have performed this operation:

CASE 1.—A boy, aged 14 years, came to the West London Hospital in April, 1892. For two years he had worn a right inguinal truss. The left testis was in the scrotum, but the right organ was absent. On making the boy cough a body feeling like a testicle could be distinguished in the inguinal canal and a distinct impulse was felt. The truss was left off in the hope that the testis might descend; this, however, did not occur, so an operation was advised, and was performed on July 12th. The inguinal canal having been opened up, a testicle of small size was found and the operation completed as described. There was a communication with the peritoneal cavity, so the upper part of the tunica vaginalis was tied and the internal ring closed. On the 13th the elastic tubing was shortened half an inch. The boy had some pains which were controlled by morphia. The next day the elastic tube was shortened a quarter of an inch. There was no pain, but there was some extravasation of blood in the scrotum. On the 17th the dressing was changed and the wound was healed. As there was some swelling and ecchymosis of the penis the cage was removed. The testicle was at the bottom of the scrotum. On the 23rd there was some discharge of treacle blood from the puncture at the bottom of the scrotum. On the 27th both wounds were healed, and the boy was able to get up. In January of this year the right testis was in the scrotum and had increased in size. There was no impulse in the groin on coughing.

CASE 2.—A boy, aged 15 years, came to the West London Hospital in September, 1891. The left testis was in the inguinal canal, but could be pushed out of it. There was an impulse on coughing and a history of a hernia, so a Wood's truss was ordered and worn till his admission into the hospital in July, 1892. When the truss was taken off, the testicle, which was very small, immediately retired into the inguinal

canal. On July 19th the testicle was brought down by operation, a radical cure of the hernia being done at the same time. The following day the elastic tube was shortened. The boy was free from pain. By the 27th the wound was healed, when the cage and sutures were removed. The testis was at the bottom of the scrotum. The patient was discharged on August 5th. At the beginning of January of this year the testis was in the scrotum, well below the root of the penis; though small, it had increased in size. There was no impulse on coughing.

CASE 3.—A man, aged 28, consulted me in July, 1892, after having been treated by electricity with no benefit. The scrotum was ill-developed and empty; the right testicle was inside the external ring, but could be pushed out and just pulled into the scrotum, though it immediately returned inside the ring when traction was discontinued. The left testis was inside the inguinal canal and could not be pushed out at all. There was also an impulse on coughing on this side. The patient insisting on having both sides operated upon at the same time, I proceeded to do so on July 31st. On the left side the fibres of the external oblique had to be divided; the tunica vaginalis was then opened and found to be quite shut off from the peritoneal cavity; but on separating the vas from the epididymis an acquired hernial sac was found behind the cord—this was isolated, ligatured, and cut away. The traction thread was passed through the vestigial remains and the operation completed in the usual way. There was no hernia on the right side. As I did not think it necessary to separate the vas from the epididymis I only divided the tunica vaginalis and the fibres of the cremaster and did not insert the testis. In that way the spermatic artery escaped division. The stitch was passed through the peritoneum at the bottom of the testicle. The cage having been applied, both the traction threads were attached to it by separate pieces of tubing. The patient did not complain of any pain after the operation; the elastic tubes were both tightened up on the first and second days and the wound healed by first intention. The cage was removed on August 7th, and the patient went home to the country on August 12th with both testicles at the bottom of the scrotum. He wrote to me in December, informing me that both the testes were still well down in the scrotum and that they had not wasted at all.

With regard to the employment of traction on the testes by

means of a thread attached to a wire cage resting on the groin, I find, on looking up the subject, that Mr. Watson Cheyne has recommended a similar procedure. He has reported* the case of a child, aged 11 years, on whom he operated in this way, but he passed his traction thread through the structures of the cord above the testicle. Traction in this position in an adult would probably be painful before the genital branch of the genito-crural nerve had been divided. I think the best point in the testis through which to pass the thread is the position of the vestigial remains at the top of the normal organ; this part is inextensile and cannot be damaged by the stitch cutting through. It has been recommended that the stitch should be passed through the tunica albuginea, but, if it were to cut through, a hernia testis might result, and orchitis would be almost certain to follow. The tunica vaginalis is too extensile for the purpose of traction. Mr. Cheyne in his operation used a catgut stitch tied directly on to the cross-arm of his cage; but I think that the intervention of a piece of elastic tubing provides more continuous extension. It would appear that the vitality of the testis might be affected, after the separation of the structures of the cord, by the division of the spermatic artery and veins; but Mr. Bennett† has pointed out that, though in nearly all operations for varicocele a portion of the spermatic artery is excised, the testicle does not atrophy, and he states that, as long as the artery of the vas is not interfered with, the division of the spermatic artery is of no consequence. He further mentions three operations for the radical cure of congenital herniæ, during which the whole cord, including the vas, was accidentally divided without being followed by any alteration in the size or consistence of the testicle. The utility of preserving these partially-developed organs may be called into question. In the case of boys about to enter the public services it is important that a testicle should not be removed during an operation for the radical cure of a hernia, as the absence of that organ might cause rejection at the medical examination. In each of my cases the testis, though still smaller than its fellow, has increased in size since the operation, and at any rate, if these organs are not sure to be functionally useful, their presence in the scrotum will contribute to the peace of mind of their owners.

As before mentioned, in former times it was the practice to

* *Brit. Med. Journ.*, vol. i., 1890, p. 351.

† *The Lancet*, March 7th, 1891.

remove a misplaced testicle when contemplating a radical cure of hernia, but, as early as 1879, Professor Annandale* reported a case where the testis was preserved with success by operating under antiseptic precautions. In this case the organ was stitched to the bottom of the scrotum. Professor John Wood, in his lectures at the Royal College of Surgeons in 1885, mentions several cases of hernia complicated with retained testis; in some he removed the testicle, but in others he freed the gland and fixed it at the bottom of the scrotum by a stitch passed from outside through the testis and tied over a carbolized pad. He also was the first to recommend inversion of the testis in the way which I have described.

M. Lucas-Championnière† claims to be the first surgeon who undertook an operation for the cure of a case of undescended testis uncomplicated with hernia. He operated upon a cryptorchid aged 10 years, whose testicles could only be made to enter the inguinal canal by pressure. Having cut down upon and freed the testicle from everything except the vas and the spermatic artery, he stitched up the inguinal canal and the upper part of the scrotum; another stitch retained the testis in the scrotum. Ultimately, the position of the glands was at the root of the penis, but the child's general development improved. M. Lucas-Championnière lays great stress on freeing the testis from what he calls adhesions, and then closing the upper part of the scrotum and the external ring so as to prevent it from receding after the operation.

M. Tuffier‡ recommends repeated tractions to partially descended testicles, and by these means, in infants, has often effected a cure; when unsuccessful he cuts down on the organ and stitches it to the bottom of the scrotum, passing the sutures through the tunica albuginea. The cure is completed by daily tractions on the testis made by the surgeon or by the parents.

My colleague, Mr. Keetley, at a meeting of the West London Medico-Chirurgical Society, showed a boy on whom he had operated by another method; after freeing the testis the tunica vaginalis funiculi was separated from the tunica vaginalis testis, and the latter sutured over the testicle. A puncture was then made at the bottom of the scrotum, and a piece of the tunica vaginalis having been dragged through was

* *Brit. Med. Journ.*, vol. i., 1879, p. 17.

† *Bulletin de la Société de Chirurgie*, 1887, p. 658.

‡ *La Semaine Médicale*, 1889, p. 125.

temporarily sutured to the deep fascia of the thigh, exposed by a small skin incision. The result was very satisfactory; but I should think that the tunica vaginalis is too extensile for traction, and that attachment of the testis to the thigh is likely to be painful.

In conclusion, I maintain that in no case of radical cure of hernia complicated with undescended testicle should that organ be removed, unless manifestly diseased, since, with antiseptic precautions, there is no additional risk in bringing it down into the scrotum. When no hernia is present, and a boy has reached the age of from 10 to 14 years without having both his testicles in the scrotum, an operation should be undertaken to bring down the missing organ. In those rare cases where the testis is placed in the perineum, I should recommend a similar operation.

In the discussion which followed, the *President, Mr. Hurry Fenwick, Mr. Bruce Clarke, Mr. McAdam Eccles, and Mr. Keetley* took part.

Meeting held Friday, February 3rd, the President, F. Swinford Edwards, F.R.C.S., in the chair.

SPECIMENS.

The President showed (1) Sarcoma of Hand; (2) Carcinoma of Rectum.

Mr. R. F. Benham a growth at the back of the orbit following dislocated lens.

THE VARIOUS METHODS OF ARTIFICIALLY FEEDING THE INSANE.

Dr. Henry Sutherland demonstrated the above. The modes of feeding which could be practised by the attendants (*a*) by the mouth were by (1) spoon, (2) two spoons, (3) feeding-cup, (4) spoon and feeding-cup, and (5) Paley's feeder; (*b*) and by the nose were—(1) spoon, (2) feeding-cup, and (3) funnel. The modes which should only be performed by a medical man were by the mouth, stomach-tube, and by the nose,

nasal-tube. The advantages and disadvantages of each were explained, and the various methods were shown, Mr. Haydn, a professional "sword swallower," being the subject chosen for operation.

Dr. Archibald Garrod read a paper on

SOME PHENOMENA OF CHLOROSIS.

When our secretary did me the honour of requesting me to read a paper before this Society, it occurred to me that it might be of interest to put together the results of my observations in the out-patient department of this hospital of one of the commonest of all diseases, but one which nevertheless affords abundant matter for clinical study. I refer to chlorosis. Yet I feel that I owe some apology to the Society for selecting this subject, since I have nothing new or original to place before you regarding it, nor do I propose to offer you the results of any elaborate statistical investigation. I feel, too, that I must of necessity refer to many matters which are perfectly familiar to all present. But if I am so fortunate as to arouse your interest at all, and to provoke a discussion upon the phenomena of chlorosis, I shall not have failed in my object.

Although chlorosis is attended by a large number of symptomatic phenomena, it is one of the most constant in type of all diseases. Indeed, I hardly know of any disorder which is more constant in type, so that one can safely predict from the mere appearance of the patient many of the symptoms from which she will suffer. Of course every recognised symptom is not necessarily present even in the most extreme cases, and one or other of the most conspicuous phenomena of the disease is usually wanting.

Let us consider briefly these more important signs and symptoms in turn, before proceeding to speak of the pathology and treatment of chlorosis.

Pallor is the most obvious of these symptoms; indeed, we can hardly imagine the disease existing without this essential sign. I need hardly dwell upon this symptom, and will content myself with pointing out how greatly the degree of pallor of a patient may vary from time to time, so that after a week of treatment a marvellous apparent improvement may have taken place, whilst the following week the patient may be as pale as ever. Active exercise, such as a brisk walk, will often produce this result.

Nevertheless the appearance of the patient will usually afford a fairly accurate criterion of the condition of the blood, as I have found in a number of examinations of the blood of chlorotic patients.

In slight or incipient cases the anæmia may not be at once apparent in the lips, but a much more delicate indication of anæmia is afforded by the condition of the conjunctival mucous membranes. In at all severe cases the blood which escapes from a cut or prick is obviously unduly pale.

Headache is one of the most constant of the symptoms of chlorosis, and if careful inquiry is made as to the seat of the pain, it will in the very great majority of instances be referred to the frontal region; but occasionally the pain is vertical or occipital. The headache of chlorosis tends to disappear as the anæmia diminishes, and rarely calls for any special treatment; but one of my patients suffered so severely from headache that she was admitted to the hospital on that account, and I may mention as a useful therapeutical hint that we found that it was greatly relieved, and could be satisfactorily controlled, by means of antipyrin.

Another almost constant symptom is shortness of breath, which is specially noticed on going upstairs. One is inclined to wonder that the dyspnœa is not more conspicuous than it is when we consider how scanty a supply of the oxygen-conveying hæmoglobin is present in the blood of chlorotic patients, and that the aeration of the tissues can be so well carried on as it is during repose, without the more frequent passage of what hæmoglobin there is through the pulmonary capillaries.

Dyspepsia is present in the great majority of cases, and varies in degree from slight gastric pain to actual gastric ulcer with hæmatemesis. It would seem, indeed, that there exists some intimate relation between gastric ulcer and chlorosis, one of the evidences being the special liability of exactly the same class of patients to both affections.

The liability of chlorotic patients to gastric ulcer suggests that there is no real diminution of the peptic activity of the gastric juice in this disease, and that this is the case has been shown by recent experiments, and to this point I shall have occasion to return presently.

M. Hayem has found that dilatation of the stomach is common in chlorosis, and I have recently had under my care a slight case in which there was evidence of considerable dilatation, and the patient herself directed my attention to the presence of a well-marked gastric succussion splash.

I have no other facts to lay before you bearing upon this point, because until I came across this case I had not looked for any evidence of gastric dilatation in such cases, not having noticed M. Hayem's statement on the subject.

In slight cases I have not been in the habit of directing any special treatment against the dyspepsia, trusting to the disappearance of the symptom as the patient's general condition improves, nor have I usually been disappointed. But in more severe cases, in which vomiting is a prominent symptom, I have usually given an alkaline bismuth mixture, with or without dilute hydrocyanic acid, usually administering iron at the same time in the form of the aloes and iron pill.

Constipation.—This very frequent symptom is of special interest in view of the suggestion of Sir Andrew Clark and others, that the stagnation of the intestinal contents is the actual cause of the chlorotic state of the patients—a view which it is difficult to reconcile with the fact that we frequently meet with most obstinate and long-continued constipation in patients who present none of the symptoms of chlorosis. It is true that such constipation is far commoner in women than in men; but why should the liability to chlorosis decrease, whilst the constipation remains undiminished as life advances?

The Urine of chlorotic patients is usually pale and of low specific gravity. I have had occasion to examine the pigments contained in a number of specimens of such urine, and have not met with any marked increase of urobilin, or of other substances derived directly or indirectly from blood pigment.

M. Hayem and other French authors lay stress upon the frequency with which a substance which they call urohæmatin is met with in the urine of chlorotic patients, pointing out that such urine often assumes a pink or purple colour on the addition of nitric acid. This is undoubtedly the case, but the pigments produced by the addition of acids to urine are for the most part members of the indigo group, mixtures of indigo blue and red, with, perhaps, a derivative of skatol or methyl indol, as well as a pigment called urorosein, which is of uncertain nature, but probably has no direct relation to blood pigment. Indeed, the presence of such pigments is to be ascribed to decomposition changes in the intestine connected with the intestinal troubles, rather than to any changes in the blood. I should mention that the name urohæmatin is used by these writers in the sense in which it was originally employed by Dr. George Harley, for, unfortunately, the same name was for a time assigned to another pigment.

I may add that it has been found by several observers that the amount of urea and of uric acid excreted by chlorotic patients is below the normal.

Symptoms referable to the cardio-vascular system are numerous and important.

Palpitation is common, and may have its immediate exciting cause in digestive, or in emotional disturbances, or may come on without any apparent exciting cause.

The character of the pulse varies greatly, but I have thought that in the considerable majority of cases its tension was rather above the normal—an opinion which has received confirmation from sphygmographic tracings. Sometimes, on the other hand, the pulse is small and very soft. I find that the latter is the character described in many of the text-books, but Dr. Broadbent, in his work upon the pulse, states that high tension is the rule—at any rate in those chlorotic patients who are dwellers in cities—whilst he thinks that low tension is more general in country districts.

The apex beat of the heart is almost invariably displaced outwards, and in some cases may be located quite an inch outside the nipple line, this, with the corresponding enlargement of the area of cardiac dulness and the absence of any heaving character of the beat, points unmistakably to cardiac dilatation, and post-mortem evidence has shown that dilatation is present, as well as a certain amount of fatty change, in most cases, at any rate, of an extreme type.

My attention has been specially directed to the common hæmic cardiac murmur, which has its seat of maximum intensity at the left base, and I would distinguish this murmur carefully from the far less common *apical* systolic murmur, which, when present, I believe to be due to actual regurgitation resulting from dilatation of the mitral orifice.

The results of these observations have already appeared in the St. Bartholomew's Hospital Reports, and I will here merely give a summary of the conclusions arrived at.

The basal hæmic murmur is always very much increased in intensity when the patient lies down. I have never met with an exception to this rule, and usually the increased loudness is most striking. Sometimes the murmur is *only* heard in the recumbent position, and it may be heard under these conditions long after the improvement in the patient's condition has caused it to be no longer audible in the erect posture.

The murmur is also increased by any exertion, such as walking briskly up and down the room, or working the arms

upwards and downwards. When the patient holds her breath the murmur disappears completely, or almost completely.

In the immense majority of cases the murmur has its maximum intensity in the second intercostal space close to the sternum, and pulsation is often present in that area. Indeed, one patient came to the hospital on account of this pulsation alone. Dr. Balfour quotes a case in which it was so intense as to simulate an aneurism.

I endeavoured to trace a relationship between the loudness of the hæmic murmur and certain other phenomena of the disease, but without success. In twelve cases the blood was examined, but no relation between the intensity of the murmur and the number of red corpuscles and the percentage of hæmoglobin could be made out.

One patient, with only 60·2 per cent. of red corpuscles and 39 per cent. of hæmoglobin, had no murmur at all, and another with 57·4 per cent. of corpuscles and only 20 per cent. of hæmoglobin, had only a feeble, soft murmur. As a general rule, however, the patients with loud murmur had a lower hæmoglobin percentage than those with only feeble murmurs. Of the patients with less than 3,000,000 corpuscles, one had a loud, one a moderately loud, and one a feeble bruit; whereas of those who had more than 4,000,000 corpuscles, one had a loud, one a feeble murmur, and one no murmur at all.

Clinical observations tend to support this showing of the hæmocyclometer and hæmoglobinometer, for I have found it impossible to foretell at all, from the appearance of the patient, what the character of the hæmic murmur is likely to be. Neither could I trace any relation between the loudness of the murmur and the degree of cardiac dilatation. One patient with a very loud murmur had the apex beat in the nipple line, whilst a patient whose apex beat was an inch outside that line had no murmur in the erect position.

Lastly, like Dr. Broadbent, I was unable to trace any relation between the loudness of the murmur and the character and tension of the pulse.

I must not omit to mention that, contrary to the usual belief, hæmic basal murmurs are frequently heard behind, but not at the angle of the left scapula. The point at which to listen for such murmurs behind is over the left part of the interscapular space at the level of the fourth or fifth dorsal spine; here a murmur which is at all loud in front will usually be heard, especially after some slight exertion. In some extreme cases the murmur is so intense that it is heard prac-

tically all over the chest, both front and back ; but such murmurs as this are quite exceptional.

I do not think that any really satisfactory explanation of the mode of production of this murmur has yet been put forward. And although the murmur is best heard behind where the left ventricle is near the spine, it seems to me that the evidence is all against Dr. Balfour's view that it is really a mitral regurgitant murmur heard over a dilated left auricle. It seems more probable that the bruit depends upon some alteration of the relative calibre of the pulmonary orifice and pulmonary artery and is analogous to the systolic murmur heard in the aortic area in cases in which there is dilatation of the aorta. It certainly is not simply due to a change in the consistency of the blood. Whatever the condition which determines the production of the murmur may be, it is certainly a temporary one dependent on the chlorotic state, since it tends to disappear as convalescence progresses.

I have nothing to add to the ordinary descriptions of the bruit de diable, so I will pass over that phenomenon without discussion.

Faintness and giddiness are extremely common symptoms of chlorosis, especially in the more severe cases. As a rule the patients merely feel faint without any loss of consciousness, but sometimes they will tell one that they frequently faint away. I have thought that these symptoms have been most marked in cases in which much palpitation was complained of.

Menstrual Disorders are of course very constant, but they vary much in type. Amenorrhœa, or scanty menstruation, is by far the commonest form ; but menorrhagia, or excessive frequency of the catamenia, is by no means uncommon. One point with regard to these symptoms, which is rather striking, should be mentioned—namely, that I have noticed that in cases with amenorrhœa the return of the menses is usually one of the latest events in the progress towards recovery—this function often remaining in abeyance even after the patient has apparently regained her ordinary colour, and has lost all, or nearly all, the other symptoms of chlorosis.

The general nutrition of the patients does not, as a rule, suffer, and indeed there appears to be an increased deposit of subcutaneous fat in many cases.

Very many patients complain of swelling of the legs and feet, especially towards the evening, and indeed such a

history is usually obtained if asked for ; but, in my experience, actual œdema is very uncommon, and only in very few cases have I detected pitting about the ankles at the time of the visit. If true œdema were common it should surely be frequently developed by the earlier hours of the afternoon. We must all be familiar with the fact that the term "swelling," as used by patients, is a very vague one, and that female patients will often make great complaints on this score without any justification for the description which is apparent to the medical attendant. I therefore attach very little importance to a history of swelling of the feet at night unless some pitting on pressure can be made out, and this, I repeat, has been in my experience very rare. I am aware that this statement is at variance with the usual teaching upon the subject, but I am glad to be able to adduce in support of it the testimony of Immermann, who, in his article on "Chlorosis" in Ziemmsen's "Handbuch," strongly maintains the same view.

Undoubtedly true œdema, with well-marked pitting, is occasionally met with in chlorotic patients, and not always in those who present the most extreme degrees of anæmia, and I have sometimes ventured to think that perhaps this œdema may be as much dependent upon the cardiac dilatation as upon the condition of the blood, as is usually taught. However, one must acknowledge that the hydræmic view receives support from the occurrence of œdema, sometimes of an extreme type, in other diseases—such as leucocythæmia—in which there is a profound degree of anæmia.

Optic neuritis must be included as a rare complication of chlorosis as of other anæmic conditions, but I can only recall to mind a single chlorotic case in which it was present.

The hæmorrhagic phenomena met with in other extremely anæmic conditions are not, I believe, ever seen in connection with chlorosis, unless, as Dr. Donald Hood and others have recently suggested, the hæmatemesis of young women is frequently independent of gastric ulcer or any actual erosion of the mucous membrane of the stomach.

I only propose to speak this evening of one aspect of the pathology of chlorosis, and passing over the interesting question of the conditions which give rise to the blood change, shall only speak of the nature of the blood change as compared with the corresponding changes in other forms of anæmia.

Permit me to remind you of the fact which has been clearly established by the investigations of Hayem and others, that

the essential change in chlorosis is a diminution of the worth of the individual corpuscles, in other words, that each red corpuscle is much poorer in hæmoglobin than it should be. The corpuscles are, moreover, apt to be smaller than usual, and frequently exhibit some degree of deformity or poikilocytosis.

At the same time there is in most cases a very decided reduction in the number of corpuscles, but this is not a constant phenomenon like the preceding, and in one instance I have counted as many as 6,000,000 red corpuscles per cubic millimetre, 5,000,000 being the average number in healthy people.

A couple of examples selected from a series of blood examinations which I made a short time ago in chlorotic cases will serve to illustrate these points :

1. M. A., aged 19 :

No. of red corpuscles per c. mm. - 4,915,625, or 98·3 per cent.

Percentage of hæmoglobin - 37.

Worth of the individual corpuscle - ·37.

(I should mention that the worth of the corpuscle is obtained by dividing the percentage of hæmoglobin by the percentage of red corpuscles.)

In this instance the number of corpuscles is rather above the average for females, who have, as a rule, rather fewer than men ; but the percentage of hæmoglobin is very low, and the worth of the corpuscle is only ·37 instead of 1.

2. E. R., aged 24 :

Number of red corpuscles - - 2,575,000.

Hæmoglobin - - - - 20 per cent.

Worth - - - - ·34.

It will be noticed that here the red corpuscles are reduced to little more than half the normal number, but the percentage of hæmoglobin is very low, and the worth of the corpuscles is about the same as in the previous case.

If we compare with this the condition met with in pernicious anæmia we find a great contrast. In pernicious anæmia the constant feature is the enormous reduction in the number of red corpuscles, which, in recorded cases, have reached as low a figure as 360,000 per c. mm. or 7 per cent. In fatal cases they usually fall to 15-20 per cent.

On the other hand the worth of the corpuscle is not diminished in pernicious anæmia, and may even rise above the normal ; the percentage of hæmoglobin not having undergone so great a reduction as the percentage of red corpuscles has done.

This difference is almost certainly due to an essential difference in the pathology of the two diseases, and whereas recent

investigations of pernicious anæmia all point to a great destruction of the red corpuscles, we need, I think, have little hesitation in agreeing with those who hold that in chlorosis the fault does not lie in a premature destruction of corpuscles, but in a developmental error resulting in the turning into the circulation of imperfect red corpuscles having far less than their due hæmoglobin contents, and often of but a poor supply of these.

If I may be permitted the use of the simile, in pernicious anæmia the coinage in circulation is diminished by the seizure and melting down of good pieces, whereas in chlorosis the coins issuing from the mint are of light weight and often insufficient in number to meet the demand.

It is not difficult to understand that such a disease is met with during the period of growth, and often at the time of puberty, when an increased demand is made upon the blood-manufacturing organs.

I think that a powerful argument in support of this view is supplied by the condition of the urine in these two diseases. In pernicious anæmia, as you know, the urine is often of a very dark colour, and Dr. William Hunter showed that this was due to the excretion of very large quantities of urobilin. Now, there is good reason to believe that destroyed blood-colouring matter finds its way into the urine as urobilin; whilst the iron which it contains is deposited in the liver and elsewhere. When large extravasations of blood are being absorbed large quantities of urobilin are found in the urine, and I can from personal knowledge endorse Dr. Hunter's statement as to the large amount of this pigment which is present in that excretion in pernicious and some other forms of anæmia.

It is a curious fact that another urinary pigment, which is much more obviously related to hæmoglobin than urobilin is, namely, iron-free hæmatin, or hæmatoporphyrin as it is now called, is not found in marked excess in such cases, its presence being apparently due to a perversion of the ordinary process for the disposal of effete blood pigment, rather than to any excessive destruction.

Now when we turn to cases of chlorosis we do not find this excess of urobilin in the urine; the urine is usually pale, and in none of the many specimens which I have examined have I found more than the ordinary amount of urobilin met with in normal urine. It would seem, therefore, that the study of the urinary pigments affords no evidence of the occurrence of an excessive *destruction* of blood pigment in chlorosis, and so

far supports the view that the fault is in the making of the blood element in this disease.

I come now to the last division of my subject, namely, the treatment of chlorosis, and before speaking of the more practical points, I may perhaps be allowed to refer to more recent theories as to the action of iron in chlorosis.

That iron cures chlorosis is a fact established by the clinical experience of everyone, and one which does not admit of discussion, so obvious is its truth ; but how iron cures chlorosis is a problem of extreme difficulty.

Let us pause to consider a few points bearing upon this question.

1. The amount of iron contained in hæmoglobin is very small, and the total deficiency of iron in the blood of a chlorotic patient reaches only a very small amount. Hale White, taking as the starting-point of his calculation Schmidt's estimate of the iron as 0.05 per cent. of the entire weight of the blood, estimates that a woman weighing nine stone, who had lost half the iron of her blood, would have a deficiency of only fifteen grains of that metal, and shows further that this amount would be derived from ordinary diet in the course of two and a half weeks.

2. It is by no means proved that inorganic salts of iron given by the mouth are absorbed from the alimentary canal, and the balance of probability appears to be on the whole against such absorption.

3. Other metals, and notably manganese, have some of the good effects of iron in the treatment of chlorosis.

4. Bunge has given a clear description of what happens to inorganic iron salts when they are taken into the stomach. Any salt of iron is converted into ferrous or ferric chloride by the gastric juice, which is further converted into oxides when it meets the sodium carbonate in the intestinal secretion. The oxides undergo further conversion into sulphate of iron in the intestine, and in this form they are excreted in the fæces.

Bunge's theory of the action of iron is as follows :

He supposes that in chlorosis, owing to enfeeblement of the gastric functions, decomposition of the intestinal contents takes place more readily than in health owing to a deficiency of hydrochloric acid ; and that, owing to such fermentative changes, the complex iron compounds contained in the food are converted by contact with the alkaline sulphides, which are also formed into the unassimilable sulphide of iron.

He suggests that when iron is given as a drug the metallic

salts so taken are acted upon by the sulphides, and the organic iron compounds of the food escape decomposition, and being absorbed, maintain the normal iron supply of the organism, and thus the malady is cured.

He quotes in support of this hypothesis the experiments of Lander, who maintains that hydrochloric acid is a more efficient drug than iron in the treatment of chlorosis.

If it were clearly established that hydrochloric acid really had such power, it would certainly go far towards confirming the truth of Bunge's hypothesis. I hesitate to speak of my own experiences with the hydrochloric acid treatment, since it is very scanty, but this I may say, that in the few cases in which I have started the treatment with this drug, the results have been so absolutely negative that I have quickly replaced it by iron with the usual good effects.

Dr. Hale White, however, had given this treatment a very careful trial on in-patients, comparing the results with those obtained by rest in bed and full diet, and his conclusions given in his paper in the *Guy's Hospital Reports* for 1891 are as follows :

1. Hydrochloric acid will not cure chlorosis. Patients treated with it do not improve more than they would do with rest in bed and good food.

2. Rest in bed and good food cause, in chlorosis, a considerable increase in the number of red corpuscles, but only a slight increase in the amount of hæmoglobin.

3. The sulphate, or the chloride, or the carbonate of iron leads to a rapid cure of chlorosis.

To come now to the practical questions relating to treatment, I have little or nothing to say about the relative value of the different preparations of iron, because I have been in the habit of giving the citrate of iron and ammonia to nearly all my out-patients; and the results obtained have been very satisfactory. The mixture prescribed contains eight grains of the salt per dose, and I think that smaller doses than this are far less beneficial. I have frequently added *nux vomica* or arsenic, but as I have already mentioned, I have usually found that Fowler's solution, so valuable in the treatment of the graver forms of anæmia, in these cases seriously increases the dyspepsia, and on that account has had to be stopped. In conjunction with this treatment I usually give the aloes and myrrh pill every night, or if the dyspepsia has required special treatment by bismuth, the aloes and iron pill instead. There is a point on which I should be glad to hear the opinion of

the members present, namely, whether they have any experience of an aperient action of mixtures containing the citrate of iron and ammonia. Several patients have told me at different times that they were unable to take the mixture because it purged them.

One patient recently gave such an account, and as she was only taking the iron mixture, and it seemed hardly credible that it should have had such an effect, I inquired carefully, and was told a very clear history of diarrhœa, beginning after the first dose, gradually increasing in severity as long as the medicine was taken, and ceasing as soon as it was stopped. I may mention that this patient was rather liable to relaxation of the bowels, and was therefore given no aloetic pill.

One thing which has been strongly impressed upon me is the importance of continuing the iron treatment for some time after the recovery is apparently complete. The liability to relapse is very great, and the tendency to chlorosis is usually only scotched, and not killed, by the treatment. Indeed, relapses appear to be the rule rather than the exception.

I should, perhaps, say a word about the treatment of chlorosis by mineral waters, such as those of Spa, St. Moritz, and Schwalbach. The last named Spa is the only one of which I have any experience, and I will, therefore, speak of it particularly. Under three weeks of treatment there, by the water rich in carbonate of iron, and ærated with carbonic acid gas, I have myself been witness of an increase of more than a million red corpuscles per cubic millimetre of blood; but I am told by medical men practising there that the young women of the place are as liable to chlorosis as any others, although most of the inhabitants habitually use the mineral water at table, and that in such cases the home treatment fails to effect a cure, and other treatment is required.

Of the effect of hæmoglobin administered as a drug I have no experience. It is highly lauded by some Continental physicians, but has met with little favour in this country.

In conclusion I am convinced that plenty of fresh air, relief from hard work, and good food, are very important adjuncts to iron and aloes in the treatment of chlorosis.

There are some cases in which all these means seem powerless to effect a cure, and in such cases improvement not infrequently follows a period of absolute rest in bed.

In the discussion which followed, the *President*, Mr. Alderton, Mr. Benham, Dr. Ball, Dr. Bennett, Mr. Keetley,

Dr. Eccles, Mr. Lloyd, Dr. Chapman, Dr. Keen, and Mr. Menzies took part.

LIGHT FROM A MEDICAL POINT OF VIEW.

Drs. Barry Blacker and **R. H. Clarke** in this paper referred, firstly, to the effects of light upon plants and the sickly inhabitants of narrow courts and dark mountainous valleys, and pointed out that in climate-cures sunlight was the one indispensable factor, all other conditions, and especially that of temperature, being variable. Pigmentation, the most interesting result of exposure to the sun, is due to the action of light, though black pigment is disadvantageous to its possessor as regards heat, since, as shown by the charts handed round, a black body absorbs heat more rapidly in the sun and cools more rapidly in the shade. The negro is pigmented in order to resist the excessive stimulus of light. Exposure in bright cold weather is followed by tanning, irritation of the skin, conjunctiva or retina, effects which may be produced by light quite apart from high temperature. Albinos, especially of coloured races, are very intolerant of bright light, fair people tan easily, whilst dark persons and black men survive in the most intense sunlight. Black people in this country exhibit depressed vitality, possibly due to the absence of light. The effect of electric light upon the peripheral nerves, according to the evidence of Mr. J. E. H. Gordon, supported by the experiments of Dr. Maklakoff, of Moscow, is probably that of stimulation. The results of exposure to the sun in Egypt when the temperature is moderate are nervous and muscular excitement, inflammation of exposed skin and eyes, headaches, slight fever, insomnia, often followed by exhaustion and loss of appetite, with bronchial, gastric, or intestinal catarrh. The authors consider that the application of sunlight, and possibly also electric light to the whole surface of the body, might be employed as a stimulant to the nervous system, and might have a specific effect in special cases.

Then followed a description, illustrated by photographs, of a small village called Valdes, in Austria, where the sun-cure has been established for the last thirty years.

The *President, Mr. Lloyd, Dr. Ball, and Dr. Garrod* having spoken, *Mr. Blacker* replied.

Meeting held Friday, March 3rd, the President, F. Swinford Edwards, F.R.C.S., in the chair.

CLINICAL EVENING.

The **President** showed (1) a case of Extensive Disease of the Head and Soft Palate in a man of middle age. The mucous membrane was affected on the right side, being much thickened and indurated. There was an enlarged gland beneath the angle of the jaw, and the case was regarded as probably malignant. (2) A case of Successful Wiring of the Patella for Fracture. The patient had made an excellent recovery, and was rapidly regaining good range of movement.

LEPROSY.

Dr. Abraham showed a man, æt. 30, who displayed the well-marked signs of leprosy. He had resided in India till 1874, and it was not until 1884 that the first indications of the disease were observed. The skin of the face, hands, and arms was thickened and nodular, and examination of an extirpated nodule showed the presence of swarms of the characteristic bacilli. During the eight years he had suffered four children had been born to him.

The *President* asked whether the patient's dietary had consisted to any extent of fish.

Dr. Potter asked whether there had been enlargement of glands or blood extravasations, such manifestations having been observed in cases under his care.

Dr. Mercer doubted the existence of cases where the period of incubation had been presumed to be forty years or more. He considered it remarkable that the patient should have propagated since he had been suffering from the disease, the testicles as a rule being early affected, and sterility resulting. He regarded the fish theory of causation as absolutely without foundation.

Dr. Morgan Dockrell referred to the fact that the sexual appetite was, as a rule, not wanting in lepers, though power of propagation was impaired.

In reply, *Dr. Abraham* said that glandular enlargement and extravasations were absent in this case. He, too, thought that a fish diet had no causal connection with the disease.

COMPOUND COMMINUTED FRACTURE OF HUMERUS.

Mr. Bidwell showed a lad, *æt.* 10, in whom the above injury to the lower end of the humerus had been caused by the crank of a steam-engine. He was admitted into the West London Hospital on December 3rd last. There was a contused wound about three inches long on the outer side of the arm, and a smaller one on the inner side; the skin and the surface of the wounds were covered with engine grease and dirt, and some fragments of bone were lying loose in the wound. Three or four of these were removed, and the end of the wire united with silver wire. It was thought that the fracture extended into the elbow-joint. The edges of the wound were then freely pared, and, after irrigating with perchloride of mercury solution, were brought together with silk sutures, no drainage tube being used. Cyanide dressings were employed, and the limb enveloped in plaster of Paris. It was not dressed for a fortnight, and then both wounds were found to have healed by first intention. The splint was left off at the end of a month, and the movements of the arm are now perfect.

EPITHELIAL CYSTS OF THE PALM.

These had occurred in a man, *æt.* 60, a patient of **Mr. Bidwell's**. On the left hand a probe could be passed a quarter of an inch into one; here there was also some Dupuytren's contraction opposite the fourth finger. On the right hand the opening was much smaller; a little swelling could be felt, and a fine probe passed in half an inch. Here there was no Dupuytren's contraction. Patient did not know how long they had existed, and they were painless.

Mr. Bidwell suggested, as a possible cause, that during his work of bricklaying some slight injury might have been done to the skin, epithelial cells being driven in, forming an epithelial tunnel. He compared them to implantation "dermoids."

Dr. Batten and the *President* considered the Dupuytren's contraction a more probable cause.

LUPUS OF LARYNX, PHARYNX, AND SOFT PALATE.

Mr. R. Lake showed this case. The epiglottis was almost destroyed, and the right ventricular band was affected, though the vocal cords still remained free; there was some infiltration and ulceration of the left nostril. The case was of two years'

duration, and had at one time improved under a saturated solution of lactic acid. The present local treatment consisted of milk and salicylic acid.

In reply to a question from the *President*, he regarded the prognosis as unfavourable.

EPITHELIAL HYPERTROPHIES OF SKIN.

Dr. Clippingdale showed a young girl, who presented numerous flattened sessile epithelial nodules on the skin of the forehead, chin, and forearms, which had existed since last September.

In reply to a question from *Mr. Leonard Mark*, he stated that the patient had not had rheumatic fever.

Dr. Abraham regarded the growth as of a warty nature.

A CASE FOR DIAGNOSIS.

Mr. Keetley brought forward a case for diagnosis. The patient, a young girl, *æt.* 19, presented a growth apparently on the muscles of the right forearm, beneath the fascia. It was oval in shape, about two and a half inches in length, and rather less in breadth, and giving to the touch a sense of obscure fluctuation.

The *President*, *Mr. Lloyd*, and *Dr. Widenham Maunsell* having spoken,

Mr. Keetley said he had come to no definite conclusions as to its exact nature, but intended to cut down upon it with a view to its removal.

Meeting held Friday, April 7th, the President, F. Swinford Edwards, F.R.C.S., in the chair.

Exhibits.—**Dr. Morgan Dockrell** showed a patient suffering from a peculiar pigmentation of the face, neck, hands, arms, and penis.

Dr. Campbell Pope exhibited (*a*) one month ovum, (*b*) twin two months ova.

THE TREATMENT OF SPINAL ABSCESS.

Mr. Keetley read a paper on the above. The method described consists of thorough operation by free incision, erosion of pyogenic membrane, and finally hot sublimate douche (1-3,000), followed by injection of ethereal solution of iodoform. With or without drainage, the patient should be fitted with a plaster of Paris jacket, made before the operation, and allowed to leave his bed in a fortnight. This practice has been followed at the West London Hospital for twelve years, except in a very few special cases, and always with impunity. Methods of obtaining access to diseased vertebræ were then described, including one by trephining through the pedicle of dorsal vertebræ.

The *President* asked whether **Mr. Keetley** had ever tried the injection of a solution of nitrate of silver (3j or 3ij to water 5j) for the healing of sinuses.

Dr. Travers, *Mr. Bidwell*, and *Mr. Lunn* advocated drainage by antiseptic gauze.

Dr. Widenham Maunsell, *Dr. Dockrell*, *Dr. Campbell Pope*, *Mr. Benham*, and *Mr. McAdam Eccles*, each having spoken, *Mr. Keetley* replied.

Dr. C. W. Chapman on a

CASE OF PRIMARY CANCER OF THE KIDNEY IN A PHTHISICAL PATIENT.

J. S., æt. 50, labourer, married, came under **Dr. Chapman's** care while the latter had charge of **Dr. Evershed's** patients at the North London Consumption Hospital. He was admitted July 26th, 1892. Both parents alive and well; one brother died at 23 of phthisis. Seven years ago, while a policeman, he strained his side in jumping over a parapet of a small bridge to save a child. Following year he was discharged from the force by reason of weakness in right hip. At same time a cough developed, with hæmorrhage on one occasion. In January, 1892, he had influenza, when a lump in the right loin was observed. On admission there was tubular breathing at both apices. In right flank, with the exception of a narrow band of resonance below liver, dulness extended to brim of pelvis, and, laterally, to middle line of body. The legs became œdematous up to the thighs in a few days. The dulness was from just below the liver to brim of pelvis. Urine acid-albumen two-thirds. No fluid obtained by hypodermic

needle. On August 10th, the first appearance of blood in the urine. Temp. 95° for twenty-four hours. August 13th, a small amount of puriform fluid free from blood was aspirated. August 16th, three pints of bloody urine passed per urethram. This was repeated on the 19th; and on the 20th patient died.

Post-mortem.—Old adhesions at both apices of lungs, and radiating cicatrices; no cavity; right iliac and lumbar regions occupied by large rounded semi-elastic tumour, overlapping vena cava, and adherent to cæcum and colon. The upper half of the growth was fairly healthy kidney. Microscopically, tumour consisted of spindle-celled carcinoma with a very loose stroma.

Remarks.—The history, physical signs, and post-mortem appearances leave no doubt that the patient had had phthisis, and that this disease made itself apparent about the time of the injury, which presumably started the fatal cancerous disease. It is interesting to note that with the advance of the latter disease the former receded.

Mr. J. R. Lunn on

TWO OBSCURE RENAL CASES.

CASE I.—M. E., æt. 38, widow, was admitted September 8th, 1892, with slight hæmaturia and old doubtful signs of phthisis at the right apex. Her family history was good. She had suffered from dysuria and pain in the left side of the abdomen off and on for the past eighteen months, which had recently become much worse. On admission she looked healthy, and all that she complained of was pain over the bladder and left side when she passed water. Urine acid, sp. gr. 1.020, and contained blood and pus, but no casts. The bladder was sounded, but this gave her much pain, and nothing was detected. There was some fulness in the left renal region. The bladder was then washed out twice daily, but this gave her much pain, and had to be discontinued. Her general health began to be affected, and she begged for something to be done, as she felt she was becoming weaker and the dysuria increased. On September 29th she became unconscious, and remained so for ten minutes, the temperature rising to 102.2° . After this she became at times a little delirious, and the pus in the urine increased, though the latter never became alkaline. On October 9th, the left kidney was cut down upon and explored. No stone could be found, but it was

seen to be very soft and friable, and studded with tubercular abscesses, and after consultation the organ was removed. After the operation the patient rallied, but the pus in the urine did not disappear or lessen in quantity, and it was thought that the right kidney must be involved. Vomiting and suppression of urine set in, and patient died nine days after the operation.

Post-mortem.—Right kidney weighed five ounces, and contained several tubercular abscesses; its pelvis was healthy. The bladder showed evidence of old cystitis, and in the anterior wall, near the fundus, was a small chronic abscess about the size of a bean, discharging its contents into the bladder. The right lung showed evidence of old tubercular disease at the apex. Other viscera normal.

CASE 2.—Male, æt. 59, admitted February 1st, 1890, with symptoms of renal colic. Six months previously, while carrying bricks, he was suddenly seized with sharp pain in the left side. He continued working, but next day could not move. About a week afterwards he first passed a little blood in his urine, this being accompanied by a dull aching perineal pain and itching at the end of the penis. On admission the left testicle seemed atrophied. Urine, acid, sp. gr. 1.015, contained pus and blood, no casts. Other organs healthy. With rest the pus disappeared from his urine, and he was discharged well, May 16th, 1890. He was re-admitted, December 14th, 1891, with the same symptoms, and, in addition, pain, increased by pressure, over his left kidney region. As his general condition seemed to be suffering and he was anxious to have something done, it was decided to explore the left kidney from behind. On February 2nd, 1892, it was cut down upon and found with great difficulty. It appeared to be atrophied, and to be two metres lower than usual. After bringing it out of the wound it was thoroughly explored, but no stone or disease could be detected. It was carefully replaced, and the wound stitched up. He made a good recovery, though he suffered from hiccough and sickness for a few days after the operation. The condition of his urine did not improve at first, but in September it was found to be once more normal, and he was discharged, cured. He continues in good health.

In the discussion which followed the reading of these two papers, the *President*, *Dr. Thudichum*, *Dr. Campbell Pope*, *Mr. Benham*, *Dr. Maidlow*, and *Mr. Keetley* took part. *Dr. Chapman* and *Mr. Lunn* replied.

Meeting held Friday, May 5th, the President, F. Swinford Edwards, F.R.C.S., in the chair.

LIVING SPECIMENS.

The **President** showed (a) Case of inguinal colotomy for malignant disease of the rectum, for which he had performed excision seven years ago, and which had recently returned. (b) Case of villous tumour of the rectum in a woman.

PRIMARY TUBERCULAR CYSTITIS IN A CHILD.

This case (specimen shown) was read by **Dr. S. Bontor**. The patient, a girl, æt. 9, came of pronouncedly tubercular stock. She had all her life suffered from incontinence of urine, which latterly had been passed every half-hour or so in small quantities at a time. When first seen by Dr. Bontor, it was alkaline in reaction, and almost entirely composed of pus, and was free from blood. There was a history of a "fit" on three occasions prior to this, and these increased in frequency later on. The passage of a sound caused great pain, but nothing abnormal was detected. Washing out the bladder with solution of boracic acid, and the administration of the same drug and of benzoate of ammonium by the mouth produced no improvement in the symptoms, and the patient died from exhaustion on January 20th, no urine being secreted during the last twenty-four hours.

On post-mortem examination, the bladder contained about a teaspoonful of pus; its walls were thickened, cavity contracted; upon the left side, about three quarters of an inch above the opening of the ureter, was an ulcer about the size of a small horse-bean, with raised, undermined, and ragged edges, and its base irregular and covered with pus. The ureters were dilated to the size of one's little finger, walls slightly thickened, but not ulcerated. On laying open the kidneys, which were equally affected, the pyramids were found quite obliterated, pelvis and calices dilated, but free from ulceration; cortex hard and thin; there were no collections of pus.

ON CASES OF PURULENT NASAL DISCHARGE IN CHILDREN.
BY JAMES B. BALL, M.D.

A chronic discharge from the nose of purulent or mucopurulent fluid, or of inspissated pus, or crusts, is not an un-

common trouble in children. It seemed to me that it might be of interest to collect cases of this kind which have come under my notice, and to make some comments on them. I have therefore collected the notes of fifty-one consecutive cases of this nature, which I have treated during the last few years, and I have arranged these cases into groups according to the cause and nature of the complaint. The subjects were all under 15 years of age. In all of them a discharge of matter or crusts from one or both nostrils was a prominent symptom, and was indeed in the great majority the symptom through which the patient was brought for treatment.

The first group on which I shall make some remarks includes a very large proportion of the whole number, viz., twenty-seven out of these fifty-one cases. These twenty-seven cases may all be classed as chronic rhinitis with purulent or muco-purulent secretion. The ages of these children varied from 1 to 15 years. The greater number, however, occurred between 4 and 9 years of age. The duration of the trouble varied, in different cases from seven weeks to some years. In the cases of longer duration the discharge was sometimes described as intermittent, worse at times, better at others. In some cases the trouble dated back to infancy. In three cases the commencement dated from an attack of measles. Many of the children were distinctly such as would be described as strumous. In several there was enlargement of the cervical glands. The discharge had caused irritation, redness, or erosion of the nasal orifices and upper lip in several cases. Examination of the interior of the nose, when made, revealed congestion and some turgidity of the lining membrane, and the presence of secretion in the nasal passages. The most important fact, however, to be noted in connection with this group of cases is that, in the great majority of them, adenoid vegetations were present in the naso-pharynx. This condition, which consists of hypertrophy of the tonsil tissue normally existing in the naso-pharynx, was present, with or without concomitant enlargement of the faucial tonsils, in twenty-three out of the twenty-seven cases here referred to. Adenoid vegetations must therefore be regarded as the great predisposing cause of chronic purulent rhinitis in children, and as accounting for the greater prevalence of the complaint at this period of life.

The next group consists of nine cases of inherited syphilis affecting the nose. Three of these are cases of coryza in syphilitic infants, attended with purulent discharge. Of

course, the "snuffles" of syphilitic infants is not always attended with an actual purulent discharge, but not unfrequently it is so. A chronic purulent discharge from the nose in a young infant should always suggest syphilis. These children, however, have usually other signs of syphilis, or there are points in the history bearing on the specific origin, and the nature of the case is generally easily recognised. The other six cases of this group are instances of late inherited syphilis affecting the nose. These cases of late inherited syphilis are of extreme importance to recognise early, owing to the serious destruction and deformity of the nose in which they are apt to terminate, if neglected. The symptoms usually commence between 3 or 4 years of age and puberty. In some cases we find the nasal symptoms continuous from the early coryza of infancy, right on till the occurrence of the later destructive lesions. Thus, in one of my cases the following was the course :

A boy, *æt.* 7, was born with "snuffles," and attended as an infant at the West London Hospital for five or six months, and was treated with gray powders. Ever since infancy has had a dirty nose, and a greenish bad-smelling discharge. The nose began to fall in at 2 years old. Now, at 7 years old, the bridge of the nose is broad and flattened, the tip of the nose is depressed to the level of the face, and the anterior nares point directly forwards instead of downwards. The cartilaginous septum has almost entirely disappeared, and the passages are filled with hard, fœtid crusts.

More often a period of some years elapses between infancy and the outbreak of the late symptoms, and the disease may develop in a very insidious manner. The first symptom is usually some nasal obstruction, with increased secretion, and the case is regarded as one of chronic cold. After a time the discharge becomes purulent, offensive, and perhaps blood-stained. Even when the symptoms are thus marked the case is often looked on as a strumous condition, and its nature is not recognised until the discharge of bony sequestra, or the sinking in of the external nose awakens attention to the serious nature of the case. Other signs of syphilis may be present, such as scars about the mouth, pegged teeth, keratitis, etc.; but these may all be absent, and there may be nothing but the nasal symptoms to indicate the nature of the disease.

The next group consists of cases especially peculiar to children. They are five in number, and in each of them there

was a purulent discharge affecting one nostril only. In none of them was there any history of a foreign body having been introduced into the nose. These children were brought for treatment on account of a chronic one-sided purulent fœtid discharge from the nose. In one of them, a girl, æt. 6, who had suffered from a purulent discharge for four months, a boot button was found in the nasal fossa. In another, a girl, æt. 4, who had suffered from discharge from the right nostril for eighteen months, a calcareous mass was discovered in the right nasal passage. This was found on removal to consist of a nucleus of some vegetable matter, on which a thick calcareous coating had been deposited, constituting, in fact, a so-called rhinolith, or nasal calculus. In another girl, æt. 9, who had suffered from a discharge from the left nostril for two years, a rhinolith was found containing a piece of india-rubber as a nucleus. In a fourth case, a girl, æt. 10, there had been a purulent fœtid discharge from the left nostril for four years. A piece of cinder was found impacted in the nasal fossa. The fifth case was a girl, æt. 4, who had a pellet of brown paper in the nose. These cases exemplify the necessity for examining the nose in every case with a speculum or probe. Three of these cases had been previously under treatment at various hands. A foreign body had not been suspected nor looked for, and yet a one-sided purulent nasal discharge in a child should always lead to the suspicion of a foreign body. It is only by careful examination that bad mistakes can be avoided.

The next group consists of eight cases of a disease which is not exactly common in children, namely, simple ozæna. This disease hardly occurs in children under 8 or 9 years of age. After this age it begins to be met with, and it becomes commoner at and after puberty. It is much commoner in the female than in the male sex. Of the eight cases here referred to, two were boys, æt. 9 and 14½ respectively, the others were girls between 10 and 15 years. The etiology and pathology of simple ozæna are at present among the controverted questions of rhinology, and into these points I need not enter. The diagnosis is made from a consideration of the symptoms and a careful examination of the nasal fossæ. There is a remarkable tendency to crust formation in this disease, and the crusts emit an offensive odour. The offensive sickly odour which the decomposing secretions impart to the patient's breath is peculiar and characteristic. After careful removal of the crusts and secretions from the nasal fossæ, the mucous

membrane will be found intact. There is no ulceration or necrosis of bone. The mucous membrane is generally more or less atrophied, and the turbinated bodies are often of diminutive size. As a consequence, the nasal fossæ are unusually capacious. The atrophic process and crust formation may or may not affect the naso-pharynx as well as the nose.

The last set of cases, which complete the fifty-one cases I am dealing with, comprise two instances of one-sided purulent foetid discharge, resulting from a disease which is uncommon under 15 years of age. Both these subjects were 13 years of age, and suffered from a discharge of pus from the nostril, the source of which was in each case the antrum. I may relate the brief notes of one of these cases.

A girl, æt. 13, had suffered for some weeks from a discharge of matter from the left nostril; she had noticed an offensive odour herself, but her mother had not noticed any. Some of the matter passed back into the throat and tasted nastily. She had had some pain in the left supra-orbital region at times. On examination of the left nasal fossa some creamy pus could be seen on the floor and over the surface of the inferior turbinated body. Otherwise the parts were normal. I had no doubt this girl had pus in her left antrum, which was discharging into the nose. The first upper molar tooth on the left side was decayed. This was extracted, and the antrum was opened through the socket. On washing out the antrum a quantity of foetid pus was evacuated. This girl got well rapidly by simply washing out the antrum daily. The rapid cure was, no doubt, attributable to the very short duration of the disease before treatment.

To recapitulate, there were fifty-one cases of a more or less chronic discharge of pus or crusts from one or both nostrils in subjects under 15 years of age. Of these more than one-half, twenty-seven out of fifty-one, were cases of rhinitis attended with muco-purulent or purulent secretion, and of these twenty-seven cases, twenty-three were affected with adenoid vegetations of the naso-pharynx. There were nine cases of inherited syphilis; eight cases of simple ozæna; five cases of foreign body in the nose; and lastly, two cases of antrum suppuration.

It would be useless, within the limits of this paper, to attempt to describe the treatment adopted in these various diseases. I shall merely conclude with a few words on the treatment of simple purulent rhinitis, and I would preface

them by insisting on the importance of satisfying ourselves as to the nature of the case with which we are dealing by a careful consideration of all the symptoms, and by examination of the nose, instead of contenting ourselves, as is often done, with ordering a lotion to be syringed into the nose in every case of purulent discharge.

In the treatment of the simple catarrhal form attention must be particularly directed to the general health. The subjects are often of the so-called strumous type, and under a course of cod-liver and steel wine the nasal troubles will sometimes gradually cease, as I find noted in some of my cases. The cure, however, is often aided by gently syringing the nose with a warm alkaline lotion once or twice a day. If the nasal orifices and the lips are irritated or eroded they should be kept constantly anointed with some simple ointment. When adenoid vegetations are present in any marked degree, the propriety of removing them will naturally arise. I find that out of the twenty-three cases of purulent catarrh with adenoid vegetations, I operated on twelve cases, and in all of these the operation was followed by an immediate improvement or complete cessation of the discharge.

Dr. W. Travers read

NOTES ON A CASE OF ALBUMINURIA IN PREGNANCY.

Mrs. A., æt. 31, married nine years, was seized with symptoms of intense uræmia within a few days of the full term of her third pregnancy, with symptoms of the most profound poisoning, and almost total suppression of urine (albumen 5/6). Bleeding was resorted to, Dr. Clemow, who was associated with Dr. Travers in charge of the case, withdrawing eight ounces from the arm. Next day the patient was placed under ether by Dr. Clemow, and delivery effected by Dr. Travers with the assistance of Dr. Schacht. Considerable difficulty was met with, an hour and a half being occupied by the operation. For the next forty-eight hours the patient's condition was critical in the extreme, and but for the most unceasing watching and the exercise of the most careful judgment the patient would certainly have succumbed. She ultimately made a complete recovery, every trace of albumen disappearing from the urine.

In the discussion which followed the reading of the paper, the *President*, *Dr. Clemow*, *Dr. Chapman*, *Dr. Schacht*, *Dr. Bluett*, and *Dr. Dockrell* took part.

Meeting held Friday, June 2nd, the President, F. Swinford Edwards, F.R.C.S., in the chair.

CLINICAL EVENING.

At the previous meeting, **Mr. Percy Dunn** showed, for **Dr. Andrew Elliot**, a tubular piece of mucous membrane from the intestinal canal.

Dr. Campbell Pope showed : 1. Cast of mucous membrane from a case of degenerative colitis. 2. Specimen of maggots passed per anum. 3. Specimen of urine from a case of West Coast fever, showing crystals of nitrate of urea (?) containing spores formed on a pellicle of albumen.

Dr. Abraham showed a little girl whose forehead was covered with comedones. The condition had first been noticed at 3½ years of age.

Mr. Atkinson showed a patient, a coachman, æt. 60, with abdominal cyst, probably of renal origin. On tapping, two pints of mucous fluid containing pus had been withdrawn, but the cyst had refilled.

Dr. Chapman exhibited a case of mitral stenosis and regurgitation, and

Dr. Henry Sutherland three cases, presenting aortic and mitral systolic murmurs.

Dr. Morgan Dockrell showed : 1. Case of adenoma sebaceum in a girl. 2. Case of molluscum contagiosum, limited to the back of the hands in a girl, a Board-school teacher.

Dr. Marett Tims exhibited : 1. A case of xanthoma diabeti-corum in a well-conditioned male of middle age. 2. A case of skin disease for diagnosis.

Mr. Herbert Menzies showed, for **Mr. Richard Lake**, a case of tumour of the thyroid in a man of middle age. Both lobes and isthmus were affected.

In the discussion on these various cases the *President*, *Mr. Keetley*, *Dr. Clemow*, *Mr. Lloyd*, *Dr. Batten*, *Dr. Maidlow*, *Mr. McAdam Eccles*, and *Dr. William Hill* took part.

THE CAVENDISH LECTURE.

ON SOME CHANGES IN SURGICAL OPINION REGARDING THE DISEASES OF THE URINARY ORGANS.

BY HENRY MORRIS, M.A., M.B. LOND., F.R.C.S. ENG.,
Surgeon to, and Lecturer on Surgery at, the Middlesex Hospital.

Delivered before the Society on Wednesday, June 14th, 1893.

MR. PRESIDENT AND GENTLEMEN,

Of the many changes in surgical opinions and practice during the last quarter of a century, some have been due to the development of surgery under the threefold influence of anæsthetics, antiseptics, and recent anatomical and pathological investigations; others to changes in fashion; and all, it will be conceded, to the persevering ingenuity of surgeons in perfecting every process and instrument employed for the alleviation of human suffering. Just as certain drugs, health resorts, and stimulants become the fashion in medical practice, so do certain operations with surgeons, but such operations do not always prove to be superior to those they displace any more than the last favourite drug or health resort or stimulant proves itself to be more beneficial than that which previously had been the mode. I shall have no difficulty in showing that one or other or both of these kinds of changes have materially affected the operative treatment of affections of each portion of the urinary tract. To begin with the excretory organs, the kidneys have, of course, been the subject of greater changes than any other part—for this reason, that the whole surgery of these organs has been formed within the last thirteen or fourteen years. Till then the kidneys were the domain entirely of the physician, but since then in respect of several of their affections they have passed over to the care of the surgeon. The late Dr. Robert Martin, in writing to me on January 10, 1882, on the operation of nephrolithotomy

said : " Dear old Lawrence used to begin one of his lectures with these words, ' The kidney, gentlemen, is fortunately beyond the reach of the surgeon,' and," Dr. Martin added, " I well remember the same great authority denouncing the pioneers of ovariectomy in no measured terms some thirty years ago. *Tempora mutantur.*" An instructive warning to us is this opinion of so great a master of surgery as Sir William Lawrence, handed down to us by a former assistant physician of St. Bartholomew's Hospital, in whose presence it was uttered. Benjamin Bell, Samuel Cooper, Chelius, Copland, Gross, Rayer, Rossetus, Syme, Velpeau, and many others might be quoted as holding opinions as to the kidney in no essential different from that entertained by Lawrence, and yet to-day in the face of such a phalanx of opposing judges, several operations upon the kidney have become well-nigh universally recognised by educated medical opinion.

Floating or movable kidney is an entity about which the most divergent views have been and still are held. A few years back it was gravely asserted by a distinguished surgeon that movable kidney was a myth ; that it was a thing of no pathological significance ; that the literature of the subject was based not on post-mortem experience, but on clinical impressions which were fallacious ; that the cases of supposed mobile kidney were in reality tumours of other organs, *e.g.*, the gall-bladder, ovarian cystomata, and diseases of the head of the pancreas ; that in a few cases of mobile kidney recorded as having been observed at post-mortem examinations the condition had not been suspected during life ; and that a righteous scepticism ought to be entertained as to movable kidney being the cause of real suffering. Somewhat similar doubts were suggested, if not actually expressed, at a recent meeting of the Royal Medical and Chirurgical Society, when Mr. Bruce Clarke read a paper on acute renal dislocation. Two of the speakers referred to the rarity of movable kidney in the post-mortem room, and one stated that though he had made 4,000 post-mortem examinations he could remember but two cases of movable kidney. A third speaker who has contributed to our knowledge of actual cases of the sort attached but little importance to the clinical effect of movable kidney, for he said : " Women who are subjects of this condition suffer from a little occasional dragging pain in the side, but otherwise usually have no symptoms." Many, too, consider that the wearing of a belt is all that is requisite to relieve what little inconvenience is caused ; that nephrorrhaphy

ought not to be performed, and never succeeds ; and lately it has been prognosticated that in a few years we must expect to hear of renal calculi having developed upon the sutures used to transfix the kidney in this operation.

On the other hand, the opinion is held that movable kidney is an every-day experience in practice, that a very large minority of women are thus constituted, and that it is by no means uncommon in men. I hear of patients being told on no account to submit to nephrorrhaphy—first, because it is very dangerous, and, secondly, because it is unnecessary for a condition with which 20 per cent. of the human race pass through life.

Whilst preserving the terms “misplaced” or “displaced” for the kidney which is permanently occupying an abnormal position, the word “movable” alone suffices to cover all cases in which the kidney from time to time shifts from its normal position, but can be made to return by some movement of the bowels or of the body of the patient or by the hand of the surgeon. In justification of this simple classification let me state (1) that some of the most movable kidneys, those which float quite up to the front wall of the abdomen, cause no pain or other subjective symptom and have no mesonephron ; (2) that some of the cases in which the symptoms are most severe, most frequently recurring, and most likely to be mistaken for renal calculus rarely and sometimes never can be detected by clinical examination as movable. It is only since surgical explorations of the kidney have been made that this form of movement, which I have elsewhere spoken of as “cinder shifting,” has been shown to exist and to be the cause of very acute suffering. I have repeatedly in the operating theatre pointed out how a kidney can be moved around the tip of the fixed index-finger in every direction upon the plane of the loin, though it cannot be made to fall away from the back of the trunk even by rolling the person over on his face. Some of these cases have been explored in the belief that renal calculus was the cause of the symptoms ; others, owing to the experience thus obtained, were diagnosed correctly, and nephrorrhaphy was performed with the most satisfactory results.

Another reason for the doubts which have been expressed as to movable kidney is the frequency of errors in diagnosis whereby movable tumours of various kinds have been mistaken for movable kidneys. Mr. Lawson Tait told us some time ago that out of thirteen supposed movable kidneys which

came under his notice, seven turned out to be gall-bladders enlarged by dropsy or gall-stones. A similar mistake is recorded in the *Medical Record* of February 18, 1883, and three typical instances have come under my notice.

CASE 1.—A woman, æt. 52, for six months had felt very severe pain in the right lumbar region accompanied by flatulence and constipation. A fortnight before admission into a medical ward, on June 10, 1891, she had complete obstruction of the bowels for three days, attended by vomiting and increased pain in the right loin. On the night before admission she was suddenly seized with pain so severe that she fainted and became quite cold; the abdomen became very distended and she vomited and retched for several hours. As soon as the abdominal walls were sufficiently flaccid, a hard, oval-shaped tumour about four inches long and tender on manipulation could be easily made out. It was freely movable across the middle line and back again into the right loin; on tilting the patient toward her left side it occupied the umbilical region and reached as far as the left nipple line. The tumour also moved downwards with inspiration, was sometimes visible in the right half of the abdomen, and could be grasped between the hands when one was placed on the loin and the other on the front of the abdomen. The outline of the tumour was smooth. The margin of the liver could not be felt, and the outlines of that organ were normal on percussion. The urine was normal. I was asked to see the case with a view to performing nephrorrhaphy, but as I could not satisfy myself that the tumour was a movable kidney I suggested a preliminary examination under an anæsthetic. This was made, but as the majority of opinions inclined to the diagnosis previously arrived at, I consented to explore the right loin. The colon first presented itself; the peritoneum enveloped the tumour and was divided; one end of an elongated cyst was then brought into the wound and at the same time the lower margin of the liver was seen. It now became clear that the tumour was a greatly distended and very freely movable gall-bladder, so the wound in the lumbar peritoneum was carefully sutured, the loin wound closed, and three large faceted biliary calculi (110, 105 and 61 grains) were removed from the gall-bladder through an incision along the outer edge of the right rectus muscle.

The other two cases were communicated to me by Mr. Gifford Nash, of Bedford, and by Mr. Herbert Budd, one of the surgeons of the Worcester Infirmary.

Did time allow I could give details of two other cases, in each of which great pain and general disturbance of health were caused by a tumour which had been diagnosed as movable kidney. In both these patients the right kidneys were movable, surely enough, but it was not the kidney in either which formed the tumour and caused the suffering. In one the gall-bladder was quite movable as well as enlarged; in the other it was enlarged. In both, before operating on the kidney, I examined the gall-bladder, and both patients have been greatly relieved by the extraction of biliary calculi. Forty-nine stones were taken from the gall-bladder of one, and two from the gall-bladder and one from the cystic duct of the other.

Errors in diagnosis of this kind will be sometimes avoided by feeling whether the kidney is in its proper place, or at any rate distinct from the tumour; by the presence of a resonant thickness between the tumour and the loin; by the inability to push the tumour quite back into the loin; by the lower edge of the tumour ascending an inch or more as it shifts to the left of the middle line; by the tumour having an attachment above which causes the lower border of it to describe the arc of a circle as it moves; by the want of the uniform outline and notch of the kidney; and by the absence of the peculiar greasy or slippery feeling which movable kidneys generally have.

The above cases are as important in their bearing on the diagnosis of diseases of the gall-bladder as of movable kidney. There is an impression that a distended gall-bladder, though movable in a degree, cannot be shifted over to the left of the median line or in a vertical direction. In Cases 1, 2, and 3 the vertical movement was specially noted, and in Cases 1 and 2 the movement to the left of the median line was very considerable. I draw attention to this mobility of the gall-bladder because I was last summer in consultation with two very eminent consultants upon a case of large post-nephritic abscess, on the front surface of which the right kidney was freely movable. We were all agreed as to the nature and treatment of the case; but in considering possibilities as to the moving body, one of these distinguished men remarked that the gall-bladder was quite out of the question, because of the vertical and free left lateral movement of the solid body we felt.

The cause of another, though much rarer error, is floating spleen. Mr. J. Bland Sutton read before the Clinical Society last December a case of excision of a floating spleen with

axial rotation. The spleen was for a time mistaken for a movable kidney, but the error was corrected before any operation was undertaken by observing that the left kidney could be felt in its proper place by manual examination. Conversely, movable kidney has been mistaken for a movable spleen, as in the case recorded by Dr. Shattuck in the *Berlin Medical and Surgical Journal*.

A third reason for the doubts as to movable kidney is their phantom-like appearance and disappearance in many instances. In my student days and long afterwards much interest used to be excited from time to time by the admission of a case of so-called "phantom tumour," which, for want of a better understanding, was sometimes attributed to a localized spasmodic contraction of the muscles of the abdominal parietes; and it is probable that such contraction was often a very noticeable feature, for during the paroxysms of what Mr. Bruce Clarke would call "acute renal dislocation," I have sometimes seen the whole abdominal walls harden as in tetanus, and then in a few moments soften, to be followed by the contraction of some limited portion into a ball-like mass. I remember, too, that "phantom tumour" was spoken of in reference to a case which in 1874 formed the basis of a paper on intermittent hydronephrosis, which I read before the Royal Medical and Chirurgical Society.* In this case the hydronephrosis was caused by a villous growth in the bladder, and the intermittent distension sometimes caused a large and easily detected tumour, whilst at other times nothing abnormal could be felt. Movable spleens, ovarian and other cystic tumours which discharge their contents into the peritoneal cavity or into one of the hollow viscera, but more frequently than all, movable kidneys cause these "phantom tumours," which at one time are distinct and at another subside almost or altogether to the vanishing point.

I could give details of many cases in which an examination of the abdomen from day to day has discovered nothing abnormal, and then on some occasion a tumour was most readily made out. I made a most careful examination of the abdomen, but had I hastily expressed an opinion from one or more examinations I should have said the kidney was not movable in these cases.

As to the severity of the symptoms excited by movable kidney and the relief afforded by nephrorrhaphy, no one who has witnessed the severest form of renal colic, the great

* "Transactions of the Royal Medical and Chirurgical Society," vol. lix.

general disturbance of health, and the nervous anxiety caused by the feeling of dragging or of something dropping from the loin to the groin, all removed by merely stitching the kidney to the parieties of the loin, can any longer doubt either the reality of the suffering or the benefit derived from the operation.

Though the patient's life is never directly threatened by the mobility, it is so indirectly through the changes wrought on the kidney by the interference with the patency of the ureter and by compression of its bloodvessels and nerves, so that when discussing the treatment for movable kidney it ought not to be forgotten that such an organ, like a kidney which is irritated by a calculus, runs the risk of being destroyed by hydronephrotic or suppurative changes. To obviate this risk as well as to remove a cause of suffering and bad health, nephrorrhaphy should be performed before these destructive processes have been allowed time to develop. This ought to be pointed out when recommending an operation either for renal calculus or for movable kidney, and I feel sure that when this danger is realized by the profession it will be to the great advantage of our patients. It is often stated that a well-adapted belt is all that is requisite for movable kidney. I have not found it so. Belts, pads, and trusses of all kinds are very unsatisfactory for this condition. They do not often effect any good; they much more often aggravate the suffering when not applied by the surgeon or an intelligent nurse. The proper application of a kidney belt and pad, like the proper application of a truss for hernia, requires that the viscus should be in place. A patient can readily reduce his rupture, but it is not so with the movable kidney; it is neither so easily reduced nor so easily retained in position after reduction, and patients often find that they suffer more with the belt on than off, and this is owing to its being applied over the unreduced kidney.

The advances in renal surgery include nephrotomy for certain cases of suppression of urine, and some success has followed the treatment. The cases of anuria which the surgeon is likely to be called upon to treat may be grouped under two heads: (1) mechanical anuria and (2) reflex anuria. Since the introduction of renal surgery it has been proved that a mechanical irritation in one kidney is a cause of total suppression in both.

To save life in such cases of anuria it is necessary to perform nephrotomy on the remaining or last obstructed kidney, and

it is to be hoped that surgical opinion, aided by those distinguished physicians who from the first have recognised the beneficial effects of surgery in certain classes of renal affections, will soon cause the operation to be generally acknowledged by the profession as the proper treatment. This view is far from being at present generally accepted. In July of last year I was called to see a gentleman, æt. 47, who had passed two or three calculi nine years, and again a similar number four years previously. He had ever since had frequent pain in the renal region. After two days of all but complete anuria he was seen by a London physician, who, in reply to the question of surgical interference, said that no surgeon in his senses would dream of operating. I saw the patient late at night on the third day of anuria, and recommended pilocarpine, jalap powders, and vapour baths, and further advised that if no effective secretion followed thereupon, nephrotomy should be performed. I heard nothing more until the seventh day of suppression, when I was again summoned, at the instigation of Dr. Dickinson, who had that same afternoon seen the patient for the first time and had advised an operation, believing the anuria to be caused by calculus obstruction. But it was too late, for before I could reach the house the patient made a futile effort to pass water, became suddenly collapsed, and died. In another case a more satisfactory result followed. On January 5, 1889, I removed the left kidney for extreme hydronephrosis. In December last the right kidney, which was movable, showed marked signs of intermittent hydronephrosis with impaired secretion. Ably seconded by Dr. Knight, the lady's medical attendant, I was permitted to perform nephrotomy and stitch the cut edges of the kidney to the lumbar wound. The patient is now living and doing well, passing some of her urine through the urethra and some through the loin. There is no longer any fear of the further destruction of the kidney or of anuria from obstructed ureter. Surgical literature supplies us with evidence in favour of nephrotomy in such cases.

For the extraction of stone from the kidney opinions still differ as to the comparative advantages of incising the renal substance or the renal pelvis. I am still, as I have been from the first, strongly inclined to the belief that the route through the renal substance is the best. Though attended by much more bleeding, it permits of a much more thorough search after calculi; it allows of every portion of the interior of the organ being felt by the finger, and it is followed for a much

shorter time by the escape of urine through the wound, and much less frequently by renal fistula. I have not as yet found that suturing the incised pelvis curtails the time during which urine escapes through the wound, but I believe it to be the right practice and calculated to hasten convalescence.

As to the best method of searching for the stone in nephrolithotomy, I would lay emphasis on the necessity of exploring the whole of the interior of the kidney with the finger entered through an incision in the curved border of the organ. To do this satisfactorily the kidney ought to be brought out of the wound on to the surface of the loin. By this means the structure of the kidney can be examined by the eye whilst its interior recesses are being thoroughly probed by the finger. No other method is really satisfactory, and until this has been done effectively the surgeon is not in a position to say that there is no stone present. Probing with the needle I have quite given up as ineffectual and fallacious.

Vesical Affections.—The operative treatment of vesical affections has undergone many mutations. Within the first quarter of the century there was no choice as to the mode of removing a vesical calculus, except as to where the incision should be made, whether above the pubes, in the perinæum, or in the rectum. There was no alternative but to suffer or be cut. A little later, however, and lithotritry was so much improved and so simplified that it was deemed applicable to a vast variety of cases, and Liston, in 1838, made a forecast of the present practice when he wrote that lithotritry “is likely in a few years to supersede in a great measure the operation of cutting for stone.” Three things combined to bring lithotritry to its present perfection—anæsthesia, Otis’ urethrometer and Clover’s exhausting syringe. These three factors in Bigelow’s hands resulted in litholapaxy, and this has necessitated a complete revision of the rules which formerly guided the surgeon in his choice between the crushing and the cutting operations. Neither cystitis, nor irritable bladder, nor renal disease, nor enlarged prostate, nor stricture of the urethra, nor even the small calibre of the boy’s urethra are now reasons against litholapaxy. In the adult the new operation is employed with great success, under circumstances in which the older operation of lithotritry, with all its improvements—and they were vast—would have been fatal. In children its success is simply marvellous. The latest statistics from India, based upon the practice of Brigade-Surgeon Keegan, Surgeon-Major Freyer, and others (Caldecott,

Dennys, Goldsmith, Gimlette, Cunningham, and Headley), give a death-rate of 2·71 per cent. in a total of 663 cases. Surgeon-Major Freyer, though he has done 191 lateral lithotomies in boys without a death, has of late abandoned Cheselden's time-honoured operation, by which he can show such brilliant results in favour of litholapaxy. Though Mr. Southam, Mr. Walsham, and Mr. Morgan in this country have reported several successful cases, it yet remains to be seen, as Mr. Jacobson has well pointed out, whether litholapaxy in boys, when employed on Europeans and by surgeons whose opportunities of operating are less than those of Indian surgeons, will prove equally successful with lateral lithotomy, which has long been one of the most successful of the major operations of surgery. It may reasonably be questioned whether the risk of injury to the small and tender bladders of the young, the after-effects of some overlooked broken fragment of calculus, and the occasional occurrence of phosphatic cystitis, such as is seen now and again to follow the operation in the adult, even when the whole of a uric acid calculus has been successfully removed, will not be more than a set-off against the recognised risks of lateral lithotomy.

Another advance rendered possible by complete anæsthesia, and which could never have been accomplished without it, is digital exploration of the male bladder. Since 1882—and chiefly through the writings and advocacy of Sir Henry Thompson—this has become a well-established aid to diagnosis. Indeed, in all doubtful and obstinate cases of bladder affections and where the electric cystoscope is useless or inadmissible, the boutonnière, or external urethrotomy, is as important a means of diagnosis and treatment as is laparotomy in cases of abdominal affections. An almost immediate result of digital exploration of the bladder was to direct the surgical mind to the removal of tumours of the bladder, a class of cases which had previously been regarded as beyond the range of the surgeon's art to relieve. The name of Sir H. Thompson will always be associated with the origin and growth of this subject, and to him is due the honour of proposing perineal urethrotomy as the best method for the removal of vesical tumours, and of ably, and as I think successfully, defending his proposal against the direct challenge it received from the distinguished surgeons of the great Paris school, who advocate now, as they did ten years back, the invariable employment of suprapubic operation. Suprapubic or hypogastric cystotomy has been the subject of frequent

changes of opinion and favour. First practised by Franco in 1561, who himself strongly condemned it, the operation underwent many fluctuations. Liston wrote of it : " The operation above the pubes, still practised occasionally, is not to be resorted to for choice." Some twelve years ago the surgical world was surprised at hearing that two boys had been cut for stone above the pubes on the ground that antiseptics had made all peritoneal operations safe. If I remember rightly, these patients died, but in a few years the extra-peritoneal operation had gained ground, and it was confidently predicted that in the near future all boys suffering from vesical calculus would be cut above the pubes instead of by the perineum. At the present day, owing to (1) the researches of Garson in 1878, and of Petersen in 1880, on the influence of rectal tamponade in raising the anterior vesical reflection of the peritoneum, and (2) to the eagerness with which every opportunity is seized of widening the field of so-called abdominal surgery, the high operation for stone, for bladder tumours, and for prostatectomy, is "resorted to for choice"—it is the operation preferred by the majority of surgeons in the majority of intra-vesical cases. Just now there are signs of a return to the old plan of operating by doing away with the precautions of inflating the rectum and distending the bladder, and surgeons who feel at home chiefly or only in "peritoneal proximity" are extracting vesical calculi by the suprapubic method without employing the modern improvements. I have the conviction that the median perineal operation in adults, and Cheselden's operation in boys, are greatly to be preferred, not only on account of their efficiency and convenience, but chiefly because of their smaller mortality.

The hypogastric operation is undoubtedly easier ; it makes less demand on the nerve, steadiness and judgment of the surgeon ; it is throughout under the guidance of the operator's eye, and less important structures are divided ; but its general, indeed far too general, employment is much less due to these reasons than to the fact that it is just now "the fashion."

Prior to 1886 it was disputed whether a single, unequivocal recovery after intra-peritoneal rupture of the bladder had ever occurred. Syme had stated : "If the rupture takes place above or within the reflection of the peritoneum there cannot be the slightest chance of escape"; and Sir Henry Thompson wrote in 1883 : "In any case a recovery has never been known to happen, and can scarcely be regarded as possible."

In 1886, however, I was able to publish* the first—and so far as I know, the only—case on record which supplied actual proof of recovery after an intra-peritoneal rupture of the urinary bladder. It was that of a man whose bladder was twice ruptured—the first time by violence, the second time (seven years afterwards) by the giving way of adhesions whereby the original rent had been closed. This bladder was examined by a committee which met at the Royal College of Surgeons, and consisted of Dr. Goodhart, Dr. Kingston Fowler, Sir William Savory and Mr. Thomas Bryant. One of the conclusions arrived at after a critical consideration of the whole case was “that there is every probability of the original injury having been a rupture of the bladder attended with extravasation of urine into the peritoneal cavity.” The case has this value, that it disposes of the doctrine till recently, if not still, largely held that the fatal mischief in intra-peritoneal rupture of the bladder is done in the first onset by the escape of urine, the pernicious effects of which were deemed to be out of the power of the surgeon to prevent.

Rupture of the Urethra.—The established method of treating traumatic rupture of the urethra was simply to make a free incision in the middle line of the perineum and leave the urine to drain away through the laceration until repair closed both urethral and superficial wounds. In 1874 it occurred to me that when immediate operative treatment is resorted to in these cases—that is, before damage is done to the parts by excessive extravasation and by inflammation—the torn edges of the urethra might be drawn together over a catheter introduced into the bladder and united by two or three sutures. This I did, in the case of a man admitted into the Middlesex Hospital, with the most satisfactory result, and I repeated it in a boy, æt. 13, who fell across a crate of glass, and came under treatment on Aug. 5, 1874. Fine silver wire sutures were used in this case, but with a less satisfactory result, as one of the stitches gave way owing to the slipping out and reintroduction of the catheter on the night of the operation. A tough cicatrix formed, causing a projection on that side of the urethra and a corresponding deviation of the catheter for months afterwards. One advantage of the suturing was shown by the facility with which the catheter was replaced after its first removal. I have since then in several instances sutured longitudinal wounds of the urethra, and sometimes closed the superficial structures of the perineum as well.

* “Royal Medical and Chirurgical Transactions,” vol. lxx., p. 195.

Stricture of the Urethra.—The treatment of stricture of the urethra has always been a subject of much diversity of opinion and practice. Surgeons of fifty years ago did not dream that immediate or even gradual dilatation up to full size could follow upon the use of such thread-like bougies as are now used for cases which formerly were regarded as impermeable strictures. The attachment of a terminal pilot bougie to the internal urethrotome, as well as to Perrève's or Holt's dilator, has made it possible to employ these instruments for immediate division or dilatation in strictures of very small calibre. These instruments, however, have not been universally approved. If my recollection serves me aright, during the whole time I was student, dresser, and house-surgeon at Guy's Hospital, I never once saw either of them employed, though Mr. Durham has since invented his four-bladed urethrotome. Gradual dilatation for permeable strictures, external urethrotomy for strictures associated with urethral abscess or extravasation or multiple fistulæ, and perineal section for impermeable strictures, were the modes of treatment I then saw there. Perineal section (or Cock's operation, as it is called by Guy's men) and puncture of the bladder per rectum were the treatment for retention of urine from impassable stricture. In many cases of perineal section the patient was left for the rest of his days to pass urine through the perineal fistula. Since my connection with the staff of a hospital, I have only once punctured the bladder per rectum, and though suprapubic aspiration has been introduced for retention in certain cases, I have not, except in a few instances, practised it or sanctioned its adoption. I have seen one case of death from it caused by recurring hæmorrhages from a transfixed vesical vessel, and Mr. W. H. Bennett has pointed out some of the dangers of aspiration. Nor have I in any of the cases in which I have performed perineal section—and they are numerous—ever once allowed the patient to continue to micturate through the perineal opening, but have always, either at the time or at a subsequent operation, divided the stricture from behind, and re-established the route through the length of the urethra. I have, too, in this way re-established the natural channel after the patient had for many years voided all his urine through a perineal opening. All cases of stricture which can be treated by simple dilatation ought to be so treated, but there is a fair minority which require some different management. External urethrotomy or perineal section is the proper operation for cases of retention of urine with impassable stricture, for stric-

tures complicated with urinary stricture, abscess, or extravasation. For strictures which will not yield to ordinary dilatation, which are very irritable, or are of very resilient character, internal urethrotomy, or rapid dilatation under chloroform, are the operations for choice. Wheelhouse's operation, simple and attractive in principle as it is, I have rarely seen successfully, and never *readily* successfully, performed.

It never seemed to me that the external and internal operations ought to be regarded as alternative methods. When simple dilating is useless, and the external operations are unnecessary, we have the choice of internal urethrotomy, forcible dilatation, and electrolysis. I have no experience of the latter, having been prejudiced against it by the want of simplicity of the proceedings, by the length of time required for the treatment, and by what I have heard from Sir Henry Thompson of the trial made in his and Mr. Erichsen's presence some twenty years ago by the French surgeon Millet. The late Dr. Steavenson was one of its warm advocates up to the time of his death, and his judgment was based on personal and careful trial of it. The President of this Society and Mr. Bruce Clarke have, we know, practised it with considerable success, but I notice that both of them now incline towards its abandonment, or at any rate to its restriction to a very few cases in private practice on persons who are in no way pressed for time. As between internal urethrotomy and forcible dilatation, I think the fashion of the day is to take too unfavourable a view of the dilator. Good as is internal urethrotomy for cases of simple stricture near the bulb or meatus, and especially when the stricture is annular or situated on the floor of the urethra, so that it, and not the healthy mucous membrane, is divided by the blade, yet I think that the dilator is preferable for multiple strictures in the spongy part of the urethra, and where the stricture tissue is limited and so situated that it escapes incision by the urethrotome. Though relapses sometimes follow the use of the dilator, as they do also after internal urethrotomy, yet in the majority of the cases in which I have used it, it has given very satisfactory results indeed. I have always used it as a dilator, not for forcible rupture of the stricture. I have known no evil consequences follow its employment, but I have, on the contrary, known it to leave a permanent cure, even when no instrumentation whatever had been employed for a period of eleven years. It is much in favour of forcible dilatation that such experienced surgeons as Barnard Holt, Christopher Heath, and the late

Campbell de Morgan, and Maunder, thought so highly of it, and now that the instrument has been improved by Mr. Reginald Harrison, and its use greatly extended by the addition to it of the pilot bougie and the conversion of the guide rod into a small catheter, it can be employed for very small strictures, and sometimes without the need of anæsthesia.

In conclusion, Mr. President and gentlemen, let me ask you to excuse the fragmentary character of this address, of the many imperfections of which I am only too painfully aware. Let me, too, assure you how deeply I appreciate the honour of having been invited to deliver the Cavendish Lecture.

LIST OF OFFICERS.

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REPORT.

*Presented at the Twelfth Annual Meeting by the Council,
July 6th, 1894.*

IN presenting the annual report for the Twelfth Session, the Council has much pleasure in congratulating the members upon the completion of another year of uninterrupted prosperity and progress. The Society now numbers 340 members. (In last year's report the total number should have been given as 331, instead of 347 as inadvertently stated.) During the Session, 36 new members have been elected, 15 members have resigned, owing in the majority of cases to removal to a distance from London, and the names of 3 have been erased from the list in accordance with Law 27.

The Council has to deplore the loss by death of two members—Dr. HART VINEN and Mr. TOULMIN. Of these, the name of the former will always live in the memory of the members as one of the founders and the first President of the Society. An additional loss has been sustained in the death of Sir ANDREW CLARK, the distinguished Cavendish Lecturer for the year 1887.

Thanks to the unwearied efforts of our Treasurer, the same satisfactory condition of the Society finances has been well maintained. The donation of five guineas to the West London Hospital, presented for the first time last year, has been repeated this, and it is hoped may be continued annually.

The Cavendish Lecture upon "Some Points in the Treatment of Typhoid Fever," delivered by Sir WILLIAM BROADBENT, in the Out-Patient Department of the West London Hospital, on Thursday, June 14th, was a masterly dissertation dealing with those methods of treatment of the disease and its complications which had found most favour with, and proved to be of the greatest service in the hands of, the lecturer and others.

Following the lecture the President and Council entertained the members and their friends at an informal conversation, at which about 110 were present.

The annual dinner, held at the Criterion Restaurant, on the 30th May, was very largely attended, 90 members and guests having been present.

While acknowledging their constant indebtedness to the Chairman and Committee of the West London Hospital for the use of their room, the Council feel that they are under a special obligation to them for again so kindly placing the Out-Patient Department at their disposal for the purposes of the Cavendish Lecture and conversazione. To the Lady-Superintendent, Miss Hardy, and to Mr. R. J. Gilbert, the Secretary Superintendent, they desire to tender their best thanks for the unvarying kindness and courtesy with which they have at all times aided the efforts of the officers on behalf of the Society.

PAPERS.

THE PRESIDENTIAL ADDRESS.—“Typhoid Fever, with special reference to Points in Diagnosis and Treatment.”

THE PRESIDENT.—“Notes on a Case of Glanders.”

Dr. ABRAHAM.—“Ringworm and Alopecia Areata, and their Treatment.”

Mr. W. H. BATTLE.—“Two Cases of Traumatic Rupture of the Liver.”

Mr. L. A. BIDWELL.—“Remarks on Amputation of the Breast for Cancer.”

Mr. LENTHAL CHEATLE.—“Complications in certain Ear Diseases, and their Treatment.”

Dr. COLMAN.—“Night Terrors.”

Mr. ALBAN DORAN.—“The Feeding of Patients after Abdominal Section.”

Mr. F. BOWREMAN JESSETT.—“The Treatment of Advanced Cases of Carcinoma of the Uterus.”

Dr. H. MACNAUGHTON JONES.—“Rest, Physiological and Therapeutical, in the Treatment of Eye Affections.”

Dr. LEWERS.—“A Case of Tubal Gestation successfully treated by Abdominal Section.”

Dr. SCHACHT.—“Four Cases of Ectopic Gestation.”

Mr. MAITLAND THOMPSON.—“A Successful Case of Craniotomy.”

Mr. G. CHARLES WILKIN.—“A Case of Epithelioma of the Ear treated by Injections of Pyoktanin.”

THE CAVENDISH LECTURE.

Sir WILLIAM BROADBENT.—“Some Points in the Treatment of Typhoid Fever.”

CLINICAL CASES.

Dr. ABRAHAM.—Case of Bromide Rash.

” ” Case of Rupia.

” ” Case of Lupus treated by Tuberculin.

” ” Case of Secondary Syphilis.

” ” Cases of Alopecia Areata.

” ” Case showing Remains of Vesicating Erythema after Rheumatic Fever.

Mr. T. R. ATKINSON.—Case of Multiple Lipomata (photograph and notes).

Mr. L. A. BIDWELL.—Case of Ostitis of Lower End of Humerus.

” ” Case of Syphilitic Disease of Humerus which caused Spontaneous Fracture.

” ” Cases of Lupus excised and Skin grafted.

” ” Case of Multiple Ulcers, probably Result of Congenital Syphilis, in a Girl æt. 15.

Dr. CHAPMAN.—Case of Valvular Disease of Heart.

Dr. CLEMOW (for Mr. STEER).—Case of Myxœdema.

Mr. MCADAM ECCLES.—Case of Symmetrical Warty Growths on Legs.

” ” Case of Multiple Tumours of the Abdominal Wall.

” ” Case of Multiple Tumours of Arm.

” ” Case of probable Deposit of Urate of Soda in the Scrotum.

Mr. F. SWINFORD EDWARDS.—Case of Pelvic Tumour.

Dr. MORGAN DOCKRELL.—Case of Lupus Erythematosus.

” ” Case of Tuberculosis of Skin.

” ” Case of Psoriasis treated by Thyroid Extract.

” ” Case of Rodent Ulcer of Twenty Years' Duration treated by Resorcin.

” ” Case of Mycosis Fungoides.

Dr. GARDNER.—Case of Myxœdema (photographs and notes).

Mr. STEPHEN PAGET.—Case of Traumatic Cephalhydrocele.

„ „ Case of Spinal Anchylosis.

„ „ Case of Myositis Ossificans.

Dr. SCANES SPICER.—Case illustrating the Radical Cure of Fetid Suppuration of the Nose by Free Opening, Curettement and Drainage of the Maxillary Antrum.

Mr. W. STEER.—Case of Raynaud's Disease.

Mr. H. W. MARRETT TIMS.—Case of Symmetrical Scleroderma.

Dr. HILL-WILSON.—Case exhibiting Bilateral Enlargement above the Zygoma.

Dr. NEVILLE WOOD.—Case of Hæmophilia.

DEMONSTRATION.

Dr. H. MACNAUGHTON JONES.—New Ear Speculum with Magnifying Lens attached.

SPECIMENS.

Dr. ABRAHAM.—Head of S. American Indian.

Mr. L. A. BIDWELL.—Gall-Stones removed by Cholecystotomy.

Mr. G. MALLACK BLUETT.—Foreign body (whistle) swallowed and passed per anum.

Dr. CLEMOW.—Stomach from a case of perforated Gastric Ulcer.

Mr. R. W. LLOYD.—Stricture of the Sigmoid Flexure.

Mr. J. R. LUNN.—Appendix, etc., from case of Appendicitis.

„ „ Growth of Pancreas which had ulcerated into Stomach, causing Fatal Melæna.

„ „ Perforated Sigmoid Flexure, causing Peritonitis and Sudden Death.

Dr. GOULD MAY.—Dog's Heart containing Filaria.

Dr. CAMPBELL POPE.—A Tapeworm, 27 feet 5 inches in length.

Mr. STEPHEN PAGET.—Sarcoma of Lower End of Femur.

Dr. SCHACHT.—Uterus, illustrating one of the Dangers of Tents.

Mr. H. W. MARRETT TIMS.—Microscopical Sections from a Case of Xanthona Diabeticorum.

Mr. G. CHARLES WILKIN.—Parts from a Case of Epithelioma of the Ear treated by Injections of Pyoktanin.

Signed on behalf of the Council,

DONALD W. C. HOOD, *President.*

ARTHUR H. WEISS CLEMOW } *Hon.*

RICHARD LAKE } *Secretaries.*

BALANCE-SHEET FOR FINANCIAL YEAR ENDING MAY 31ST, 1894.

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						2 4 3	
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June 9th, 1894.

Audited and found correct,
(Signed) CHARLES ANDREWS.
F. R. MALLARD.

TWELFTH SESSION, 1893-94.

REPORTS OF PAPERS, CASES, DEBATES, ETC.,
AT THE
ORDINARY MEETINGS OF THE SOCIETY.

THE PRESIDENTIAL ADDRESS

ON

“SOME POINTS WITH REFERENCE TO THE DIAGNOSIS AND
TREATMENT OF TYPHOID FEVER.”

BY

DONALD W. C. HOOD, M.D. CANTAB., F.R.C.P. LOND.

Delivered before the Society on Friday, October 6th, 1893.

GENTLEMEN,—Those of you who may be familiar with the writings of Professor Huxley will remember that he commences one of those charming addresses for which he is so justly famed by calling attention to the beneficial results which follow a usual custom of trade: “Merchants occasionally go through a wholesome though troublesome and not always satisfactory process which they term ‘taking stock.’ After all the excitement of speculation, the pleasure of gain, and the pain of loss, the trader makes up his mind to face facts and to learn the exact quantity and quality of his solid and reliable possessions.” These are the words in which the learned professor suggests that, as men of science, we should at times investigate our own position with regard to our stock of knowledge. In thinking over the subject for my address to you this evening, and endeavouring to provide material in which I might hope somewhat to interest you, my mind reverted to the above passage, and I determined to beg your permission for laying before you some thoughts engendered by a review of my own personal experience in connection with typhoid fever. Speaking as a physician, it is doubtless more difficult to compare case with case, patient with patient, treatment with treatment, result with result, than occurs with the material that a surgeon has to deal with. His practice is essentially

more objective, and consequently more easily demonstrated, more easily made the subject of statistical methods of inquiry. Hence, I do not propose to trouble you with any detailed analysis of those cases of fever which have happened to fall under my own personal supervision ; I intend rather to bring before you some of the chief points which to me, at least, appear of special interest. I would here preface any remarks I may make by an apology, not for the subject I have chosen, which is one of weighty interest and worthy of the highest intellectual capacity, but for its treatment, which from the very nature of my discourse must appear egotistic and personal, a somewhat necessary corollary to a review of one's own experience and practice. The subject-matter of my address is derived from the attentive consideration of some 116 cases of fever which have been entirely under my care. They come from three sources—namely, patients admitted under my care at the West London Hospital, patients similarly placed at the North-West London Hospital, and those occurring in my private practice. The cases are, to the best of my knowledge, consecutive, and have been those treated by me during the past ten years. Fifty of them are from the West London Hospital, with seven deaths ; fifty-three from the North-West London Hospital, with four deaths ; and thirteen private cases, without a death. In reviewing my own personal experience as to the management and successful treatment of typhoid fever, there arose one point which appears of such eminent importance as to dwarf all others into comparative insignificance. I allude to what may appear a truism—namely, the diagnosis of the disease ; and by diagnosis I wish you to understand that I use the word with its broadest meaning, and not, as is usually the case, by limiting its use to differentiating between those diseases with which fever is liable to be confounded or mistaken. The annals of medicine are full of such ambiguous, doubtful cases ; we shall be able to supply them from our own daily practice. Our minds will revert to our student days when, preparing to meet our respective examiners, we were ready primed to write down in parallel columns the distinctions—the diagnostic peculiarities—which might satisfy the most severe, but yet are so sadly wanting at the bedside of our first patient in whom we may be called upon to solve the problem of his illness. Acute tuberculosis, meningitis, ulcerative endocarditis, ague, pyæmia, and the like, are easily described, and easily differentiated, when treated on paper. How strikingly different is the case in practice ! I have my-

self been present day after day at the bedside clinical lectures given by one of our most distinguished physicians at one of our largest metropolitan schools, the subject being typhoid fever, the patients presenting one by one all the recognised pathognomonic symptoms of that affection: a typical temperature, distended abdomen, a few scattered rose spots, diarrhoea, and slight delirium; finally, a tympanitic, swollen abdomen, and death, assumed to be the result of a perforation. Well do I remember the expression of the professor following his patient to the post-mortem table for the purpose of demonstrating to his class the morbid anatomy of the fever, when he found no such pathology as he anticipated, but a carious vertebra, with a perforation of the abscess, giving rise to those symptoms which in turn had been considered as undoubtedly due to an enteric seizure. Indeed, if we are true to ourselves, to our own knowledge of disease, we must acknowledge that under occasional and not altogether infrequent conditions an absolute diagnosis between fever and other affections is impossible. Leaving such matters of generally acknowledged difficulty with regard to the diagnosis of fever, I will pass on to the class of case to which I would specially invite your attention this evening. I believe, if we conscientiously examine our own ideas as to the onset of fever, we shall find that we are all apt to overrate the ease with which the diagnosis can be made. My remarks here refer absolutely to the milder forms of fever, cases which lack most, if not all, the important pathognomonic symptoms which, in an ordinary attack, give us the opportunity of making an accurate statement as to the true cause of illness within but a few hours of careful watching. Ever and anon we are impressed by one of those cases, proving rapidly fatal from a perforating typhous ulcer, which, upon reference to the clinical history, is seen to have been without premonitory symptoms—cases described in our text-books under the name “ambulatory typhoid,” and, as Dr. Fagge remarks, “a but clumsy designation for this particular class of case.” This is the sort of case to which too much importance is attached. It would be far better to grasp the evidence produced by those unfortunate individuals who by some peculiar personal characteristic are enabled to bear—aye, and without apparently much discomfort—the pathological sequences of a specific attack of enteric fever. It would be far better to look upon such cases as striking proof of the presence of mild, badly marked instances of fever, and to see that it is these cases which it should be our earnest,

constant endeavour to recognise before the pathological changes arise which quickly bring a simple undeveloped state of supposed indisposition to one of absolute hopelessness as regards recovery. From my own experience I consider these subacute attacks of fever to be very far from rare; and I believe we have legitimate clinical grounds for placing such cases in two classes. The one would comprise those patients who are the subjects of a fever which runs throughout a course of extreme mildness, but which is, of course, accompanied with the specific bowel affection of the disease, and therefore exposed to all the local dangers incident to the disease, the chief of which are perforation and hæmorrhage. In another class I would place those patients in whom the attack is followed by an outbreak of more pronounced type, maybe with all the well-known symptoms of typhoid fever present in high relief. You will at once perceive how artificial is such a classification, and it is only proposed for the purpose of bringing the primary stage more directly before you. Naturally the one class will be found frequently associated with the second; they prominently represent the difficulties incident to ill-developed typhoid fever from the standpoint of diagnosis; in other words, they are suffering from a secondary seizure or relapse, and it frequently happens that it is for this secondary attack or relapse that the patient seeks advice. If we turn to the hospital records, it is surprising how many fall under this category—patients who have been more or less ailing for some weeks in many instances following their avocations up to the day of admission. I need hardly add that such contribute materially towards swelling our mortality tables. The bowel lesion may be looked upon as a faithful index as to the stage of fever through which the patient is passing, and it is from pathological evidence alone that I feel justified in making the classification I have just referred to.

To these cases of latent, subacute, or ill-defined fever my attention was first directed by a patient who died under the care of the late Sir William Gull. The post-mortem examination was made by me in November, 1879, the case being described in the *Guy's Hospital Reports*, vol. xlii., where will be found a capital illustration showing the diseased state of the ileum. - The description of the specimen is from the pen of Dr. Goodhart, who states that the lower portion of the ileum was extensively diseased, showing several stages, which he divided into the following groups: (1) ulcers with their sloughs separated and with distinct cicatrization of the edges;

(2) ulcers with sloughs separated, but with no evidence of healing; (3) ulcers with sloughs separating; (4) solitary follicles and agminate glands swollen and beginning to ulcerate in their centre; and (5) swollen follicles and glands without any attempt at ulceration. In the paper describing this instructive case the pathology alone is discussed; the clinical history, with its all-important lessons, is not touched upon. There were obvious reasons why the history of the patient could not be dealt with fully at that period, but now, after the long lapse of time, I have no hesitation in referring to it from my notes made on the occasion of my performing the post-mortem examination. The patient was a gentleman thirty-seven years of age. On or about September 14, 1879, he became indisposed from headache, accompanied with diarrhœa and some slight rise of temperature. Within a fortnight he was considered well, and was sent to a seaside resort. Returning home on October 9, he was again seized with illness, headache being now the principal symptom. On November 3 he had recovered, and again sought change of air in the country. Four days later the symptoms returned, the bowels being obstinately confined—in fact, this symptom was considered as the true cause of illness, and strong turpentine enemata had been administered to try to overcome the constipation. A few days later in the month the symptoms, including pyrexia, vastly increased in severity, and Sir William Gull saw the patient, who succumbed within a few hours from hæmorrhage. When examining the bowel, with its tremendous array of ulcerating tissue, it seemed almost impossible to believe that the clinical course of the attack could have in any degree simulated the account I have briefly referred to; the diseased bowel spoke clearly as to there having been at least three stages or attacks of fever, these stages probably agreeing with the incidence of each respective attack of symptoms. This portion of intestine showed with fatal distinctness how strangely masked a true definite seizure of fever can be; moreover, that an extreme degree of ulceration need not necessarily be accompanied with any diarrhœa, but that the reverse may be the case, and that constipation may become a symptom denoting ulceration extending over a large area of intestine. Certainly my own clinical experience tends most decidedly to confirm this truth. I believe diarrhœa does not by any means warrant us in considering the ulcerative process as being of an extreme nature.

A very similar case to the above came under my notice

within the last twelve months. I was asked by Mr. Christopherson, of Hastings, to see a patient with him, whom he considered to be suffering from an attack of typhoid fever with rapid accession of grave symptoms. Here the history was practically the same as in the last case. A gentleman was out of health for some weeks, during which time he had been travelling on the Continent; he was sent to the seaside for change, and within a few hours of his arrival at Hastings he developed symptoms of great intensity, which were at once recognised by Mr. Christopherson as probably due to typhoid fever. Although this patient had only been severely ill for a few days, his symptoms were those of an enteric attack of about three weeks' duration. When the previous history was carefully sifted we found that the clinical conditions completely squared with such an assumption, but that with regard to the initial period the attack had been strangely wanting in the usual symptoms of typhoid fever, the state of ill-health being little more than general indisposition. I cannot but believe that there is much misconception as to the course of the fever process. There are, at the present day, but very few physicians who doubt that the cause for fever is to be found in the lower organic world; probably all of us here this evening agree that the poison of typhoid fever is a living organism. We are doubtless ignorant as to the definite, exact steps followed during its life-history when affecting its living host; from all analogy we are right in assuming that, whatever processes its development passes through, such developmental stages are invariably accompanied by corresponding pathological changes in the tissues of the affected individual.

The pathological anatomy of the typhous process is usually accepted as taught by Liebermeister. You will remember that, according to that renowned teacher, the first week of the disease is occupied by the swelling and infiltration of Peyer's patches. During the second week they slough or begin to subside. In the third week any sloughs that may have been formed become detached, so that, by the end of this period, all the ulcers have clean floors. During the fourth week they begin to heal. As Dr. Fagge remarks—from whose work I quote—"This statement of Liebermeister is easy to remember, but it is certainly not universally applicable in such a way that a pathologist should be able, from the appearance after death in a given case, to state positively the duration of the patient's illness." In other words, according to some authorities, the pathological appearances after death do not

inevitably tally with the clinical history of the patient. Personally, in all such cases—that is, in all cases where the clinical history of the infected individual does not agree with the pathological changes of tissue—I should feel inclined to look upon the clinical history and not the pathology as being at fault, the poison affecting individuals with different degrees of force. When, therefore, we find a diseased state of ileum with ulceration or deposits specific to the typhous process, but where the clinical history does not tally with the morbid anatomy, we are not right in regarding such a condition as one of rapid pathological development, but rather as a modification and amelioration of the normal symptomatology of the disease. And these cases lie on the extreme margin of that chain of evidence which links case with case and supplies us with proof that all pathological changes are not necessarily accompanied by the same constitutional disturbance, and that a mild clinical course is not free from all the dangers attending severely marked pathological processes.

In proof of the insidious, anomalous onset of some cases of enteric fever, the following account of a patient under my own care affords a striking and apt illustration :

CASE I.—A patient fifty-six years of age, of good general health, consulted me on the evening of January 3. He brought from his country adviser a letter stating that the symptoms of illness were slight: loss of appetite, insomnia, and an unusual lassitude. There was a question as to the state of the urine, which had been noted as being albuminous on more than one occasion. The indisposition was considered as being due to this cause, aggravated by stress of work and worry, the official duties of the patient being of the most onerous and, at the same time, highest order. At that time and for the preceding few weeks they had been especially trying and complex. The patient's own complaint at this period was simply: "I feel wretchedly ill and unfit for work, and have been for nearly a month." The tongue was fairly clean; the pulse was 82; the bowels were regularly opened; the appetite was poor, and sleeplessness was a great trouble; there was no headache. The temperature had not been taken; there had been no symptoms whatever pointing to the presence of pyrexia. When I took the temperature it was 102° Fahr. On the following morning decided improvement was felt; the temperature was 99°, the pulse being 72. In the meantime I had had an opportunity of examining the urine. I could find no trace of albumen, but on adding nitric acid

there appeared a hazy ring of deposit—nitrate of urea. On the evening of this day the temperature had again risen to 102° , dropping next morning to 100° ; there was now profuse diaphoresis, the evening temperature being 102.5° . The diagnosis was still most obscure; for several reasons which I need not here particularize “influenza” was unlikely to be the malady. A careful review of the previous few weeks showed that the patient had been in his usual good health up to about the middle of December, since which time he had been observed by several friends to be looking very ill, and owned himself to be feeling so. Putting all the facts and details of the history together, my conclusion was that the illness was the termination of a mild, ill-expressed attack of typhoid fever, and I treated the patient as suffering from that affection. I have stated that on the third evening of my seeing the case the temperature had risen to 102.5° . On the morning following it was subnormal. During the five succeeding days there was a slight evening rise of temperature, the morning temperature being 99° or normal. The general state of the patient showed improvement. The pulse was about 60, and the tongue fairly clean. I have so often been impressed by the latency of many cases of fever that, although I could but feel that many might call in question the accuracy of my diagnosis, I had not in any way relaxed the stringency of treatment adopted from the first, the ordinary treatment for fever having been most strictly followed. On January 12 the morning temperature was 98° , and for the eight following days the morning and evening temperatures remained normal. All the other symptoms had disappeared. The patient slept well; the appetite was restored, the only complaint being as to the restriction in diet; no solids had been allowed. On the afternoon of the eighth day of the temperature being normal night and morning, the patient sat up for three hours on a sofa. On the evening of that day the temperature rose to 100.4° , falling to 100° the next morning, but rising at night to a higher degree than had as yet been recorded. From this date the illness assumed in every characteristic the type of a severe attack of typhoid fever. There was no complication, and a perfect and complete recovery took place.

This case places before us with great distinctness one of the peculiar phases of typhoid fever, and demonstrates the extraordinary latency of some attacks which are followed by a development of fever of normal type. Reflection upon the first case I alluded to—the one reported in the Guy’s Hospital

Reports—comparing its pathology with the clinical features of that just described, will help us in estimating the danger of failing to recognise the milder types of fever. In the first case we have evidence of markedly severe pathological changes producing but mild and anomalous clinical symptoms, the specific nature of the illness being unrecognised and allowed to drift on, and as each stage was reached the symptoms increased in gravity, the successive attacks of illness without doubt corresponding with parallel pathological conditions readily demonstrable in the ileum. The one case supports and supplements the other, and supplies links in the chain of evidence, which are faulty as regards one case examined alone.

CASE 2.—Many cases of latent typhoid fever which have subsequently developed into a typical seizure have come prominently under my notice; but time does not permit me to refer to them individually or in great detail. This case, one of much interest, occurred in the person of a youth who was admitted into the West London Hospital under my care in October, 1892, for supposed rheumatism. The boy had complained of painful joints, and there was a soft mitral bruit. The attack had lasted for eight days before admission to hospital. From the history and clinical state of the patient subsequent to admission I could not satisfy myself that the illness was rheumatism. For twelve days the temperature showed slight morning and evening fluctuations; there was no rash, but the tongue was coated, and the abdomen was unduly swollen; the bowels were opened daily. On the thirteenth morning after admission the temperature was subnormal and remained at or about normal for another ten days, when an evening rise of temperature to 103° Fahr. was noted. Upon this day a typical attack followed with copious eruption of rose spots. The first illness was clearly proved as being an indefinite mild attack, followed by a relapse, or, as I should prefer to say, a secondary seizure of pronounced severity.

The cases I have alluded to illustrate the fact that a primary attack of fever may be anomalous, indefinite, and altogether wanting in that array of clinical symptoms so well known and recognised as belonging to typhoid fever. They prove beyond cavil that such an anomalous attack may be followed by a true, typical seizure of fever; though that many cases occur where the fever is of the mildest type and is not followed by any relapse or secondary attack I cannot doubt. Possibly the work done in our scientific laboratories may, at some future

period, supply a clue towards elucidating some of the complex problems in bacteriology. We shall hope and expect that they will supply us with knowledge relating to the different types of our common infectious diseases. Is such difference in type due alone to differences of soil upon which the infecting organism may chance to fall, or does the infecting organism itself undergo changes as regards its specific virulence? We may hope for answers to all such questions in the fulness of time. With regard to severe types of fever following upon mild and ill-expressed ones, we are in possession of facts which tend to show that, under certain conditions, the virulence of the bacteria of typhoid fever can be largely increased by passing them through the bodies of animals that at first offered great resistance to their pathological action.* It is possible to base a hypothesis upon laboratory experiments that under some unknown conditions the specificity of contagium, as evidenced by more pronounced symptomatology, is promoted by a previous infection. To speak more clearly, a severe, well-marked attack of fever will be found to follow one which has been wanting in most, if not all, of those special symptoms which we are accustomed to regard as being pathognomonic, the primary infection apparently increasing the virulence of the poison. One symptom of fatal significance frequently ushers in the last stage of these mildest attacks; a sudden peritonitis, rapidly followed by exhaustion and death, is well known. In some few of these cases it is even difficult to discover any previous symptom of illness, and from such instances we are enabled to affirm that a patient may suffer from intense local lesion producing ulceration of the intestinal wall, and, moreover, a lesion produced by a specific poison, and yet exhibit none of those usual phenomena of illness which we are accustomed to look upon as denoting the effect upon the economy of that specific poison. The following case fully illustrates this:

CASE 3.—Some years ago a young woman, a domestic servant, was sent to the West London Hospital under my care by Mr. Rickard Lloyd. The patient was suffering severely from a sudden seizure of abdominal pain, which had been correctly diagnosed as due to peritonitis. From the symptoms and general condition of the patient it was impossible to speak with absolute precision as to the exact cause of the inflammation. A perforating gastric ulcer, the usual

* Professor Franklin's address before the British Association, 1893.

cause for the symptoms she presented, appeared to be contra-indicated, and the diagnosis—or guess—lay between some uterine trouble and an enteric attack. With regard to the latter disease there appeared to be lacking every vestige of symptom. The girl had been employed in her usual duties as parlourmaid up to the moment of attack. She habitually suffered from constipation and was accustomed to take a large number of pills, and the symptoms of the initial seizure were considered as referable to this habit. On the evening of March 6, 1888, she had waited at dinner; a short time afterwards she suffered from violent abdominal pain, vomited, and went to bed, but made no complaint. Mr. Lloyd did not see her till the following evening. I made special inquiries where she was in service, in order to obtain authentic information as to her health before admission to hospital, and I think the facts obtained by me showed conclusively that practically there were no symptoms of any consequence. She happened to be a maid much appreciated by her employers. They had had no idea that the young woman was not in her ordinary health up to the time she was seized with “colic.” And yet, what was the reverse of the shield? The intestines showed with terrible conclusiveness that for at least three weeks the patient had been passing through the stages of typhoid fever, the lower portion of the ileum being extensively diseased. “There were here ten deep purple-coloured swollen ulcerated patches, one of which had perforated.”

Such a case as this is important, not only from its own peculiar interest, from its own special intrinsic value, but rather from the fact that it brings before us the appalling danger of overlooking the milder cases of fever. The danger of these attacks practically hinges upon the fatal complication.

The following case will be found to furnish very similar features :

CASE 4.—A general servant applied for relief at the West London Hospital on April 27, 1886. She had walked to the hospital, and stated that she was suffering from severe pain over the abdomen, which was found to be distended and painful. She was a fair, delicate-looking girl, 19 years of age, and had been engaged in her ordinary duties up to the time of admission. She owned to having felt unwell during the past three weeks, but at no time had this indisposition prevented her from attending to work. During the two or three days previous to her admission she had suffered from abdominal

pain, and within the past twenty-four hours the abdomen had become distended. For this symptom she applied for advice; her bowels had been confined. On admission her pulse was 96, the temperature was 101.4° Fahr., and the respiration was 24. The patient was deaf, listless, and lay on her back with the legs drawn up, the physical symptoms being those of acute peritonitis. The following day the symptoms had increased in severity, the evidences of peritonitis were more marked, and the constitutional disturbance was more severe. On this day the bowels acted, the stools being formed and of ordinary character. Remaining in much the same condition during the next ten days, improvement gradually took place; the peritonitic symptoms decreased in severity, the temperature and the pulse fell, and the patient was bright in manner, asked for food and books, turned easily from side to side, and appeared better in every way. Matters remained thus from May 13 to June 7; the bowels acted naturally; there was little or no pain over the abdomen, but this part was still unduly distended. On the evening of this day (June 7) the temperature rose to 104° ; the girl vomited, and complained of severe pain in the lower iliac region; the pain and vomiting continued for six days, and the patient died from exhaustion on the forty-seventh day after admission into hospital, and as nearly as could be judged from the history of her illness about the seventieth day from its commencement. The post-mortem examination clearly showed the attack to be one of peritonitis due to a perforation accompanying typhoid fever, the perforation being adjacent to one of Peyer's patches, which was ulcerated. In the lower portion of the ileum three of Peyer's patches showed distinct signs of old ulcerative processes, all being indurated, and one was distinctly cicatrized. The case is reported with greater detail in the *Lancet* of August 7, 1886.

Dr. Murchison, in his work on "Continued Fevers," calls attention to the frequency with which these mild attacks are complicated with perforation. He writes: "It is a fact, which cannot be too strongly insisted upon, that perforation may occur in cases of the mildest description, and in which the bowels have been throughout confined." Again he states: "In nine of my sixty-nine cases of perforation there had been constipation up to the occurrence of perforation, and in five of the nine cases the general symptoms had been very mild. I have known a man walk more than a mile to the London Fever Hospital at the end of the third week of the fever, and

die of perforation within thirty hours of admission. Another of my patients was seized with perforation while digging. . . . Most writers agree in stating that perforation is chiefly met with in these latent cases."

We are so accustomed to meet with typhoid fever with its wonted severity that, unless we have personally met with cases of the mildest type, it is difficult to realize, when we happen to see a case, that fever is truly the cause for the slight indefinite symptoms of which complaint is made.

CASE 5.—On June 15, 1890, I was consulted regarding a lad who had been indisposed at school, and had been brought to London for advice. The symptoms were those of but slight indisposition, with confined bowels. At the time of my first seeing the patient the temperature was raised, being just above 100° Fahr. The history dated back to the 24th of the preceding month, being about three weeks. As far as I could judge, on that day the boy appeared well; a few days later he had been visited by friends and taken to lunch at a pastry-cook's, and on June 1 complaint of illness was first made, the symptoms being headache and feverishness. From that day till my interview, in all being fifteen days, whenever the temperature had been taken it was found to be raised, varying between 99° and 102°. From the first day that the boy came under my care till the termination of the illness there was an invariable evening rise of temperature, and frequently a morning rise also; the bowels were confined, necessitating enemata; the tongue was slightly coated, and the abdomen was more distended than is normally the case. I wrote to the medical man who attended the school whence my patient came, stating that, although the attack was slight and indefinite, I considered there was little doubt but that typhoid fever was the cause. In answer to my letter I received a most courteous reply, but, at the same time, my correspondent did not agree with my diagnosis, giving his reasons for not doing so as follows: that typhoid fever "was contra-indicated by reason of the sudden onset," and by "the continuous improvement from the commencement of the severe symptoms, and the apparent definite cause—*i.e.*, a surfeit of rich food"; and, lastly, by the "utter absence of any similar case at the school." However, he added, "It is a very reasonable suggestion, and one that will make me keep my eyes extra widely open. The abortions of typhoid fever are most interesting to watch, and certainly very little understood, and it is only by getting such

a letter as yours that one gets a chance of really following up possible clues."

I give these quotations in no carping spirit, but simply because they refer to what is practically—at least, so far as my own personal judgment leads me to give an opinion—a fallacy. Now, with regard to the manner in which the onset of fever can assist us in making an accurate diagnosis, doubtless in by far the largest proportion of cases the onset is more or less prolonged, but a rapid, sudden accession of symptoms is far from uncommon. We may see it as a maniacal outburst, as an acute catarrh, as a pharyngeal attack closely mimicking diphtheria, and as a lung seizure as closely simulating pneumonia. I remember, in one case coming under my care in hospital, a schoolboy, aged 11, was seized at school with severe vomiting and diarrhoea, for which, unfortunately, "fuel was added to the fire." Large doses of salts and senna contributed to the fatal issue of an attack perfectly sudden as regards its initial symptoms, but none the less truly initiated by typhoid poison, as was shown by the extremely diseased ileum. Again, with regard to another fallacy, especially prevalent when diseases of children are under notice, I doubt very much whether a surfeit of the richest food will cause continued pyrexia in child or adult. Gastric disturbances with children, and especially with children of certain families, will readily cause a sudden and violent pyrexia, with a temperature rising to 104° or 105° ; but with such children a few days' treatment soon puts an end to a storm which looked formidable at the onset. Much more suspicious are those cases—I allude to children only—where the temperature is not so high, but where the fever ebbs and flows day after day, maybe week after week, and where, after excluding all other possible causes, the specific poison of typhoid fever is found to be the exciting influence. So closely do these cases simulate meningitic trouble that for the first few days of illness we have no means of differentiating between the two illnesses. I have met, as probably most of you present have also, with cases of tuberculous meningitis which, in all particulars, have closely resembled the ordinary symptoms of typhoid fever; while, on the other hand, as often—or far more often—we meet with patients whose attacks resemble meningitis, but are eventually found to be fever, under which class most of the cases of "cured" meningitis will be found to fall. The following record alludes to a case in which the diagnosis was of the greatest difficulty:

CASE 6.—A schoolboy, 14 years of age, was admitted under

my care in the North-West London Hospital on December 9, 1889. The lad had been ailing for more than a week, but had continued at work; there was a strong phthisical history in the family. There was no rash, diarrhœa, or abdominal disturbance; the temperature was high (103° to 105° Fahr.). On the second day after admission he passed a natural formed motion. The symptoms were entirely referable to the chest, fine crepitation being heard all over the lungs. The respiration was 44; the temperature was 105° , but this was reduced by sponging to 102° . On the tenth day after admission he died suddenly. The post-mortem examination proved that the boy must have been in at least the third week of an attack of typhoid fever—probably the duration had been longer. Peyer's patches were ulcerated; the sloughs had separated and showed no trace of healing. Two patches were the seat of the perforation.

With children—as indeed with adults—a continued fever, accompanied with indefinite symptoms of pneumonia or rheumatism, should invariably put us on our guard against the insidious onset of typhoid fever. I am surprised, in looking through my hospital cases, to note the large number of patients who, through complaining of aching back and joints, have been considered, by reason of these most ordinary symptoms of all known varieties of pyrexia, to be suffering from acute rheumatism. In others rapid respiration, some cough, and a raised temperature have at first attracted attention to the pulmonary area, and day by day the lungs have been carefully examined with confident expectation that a pneumonic patch would clear up the doubtful diagnosis. In these cases frequently, as the chest symptoms subside, those of typhoid fever become accentuated, but the brunt of the primary attack is apparently centred on the lung. In discussing some of the difficulties underlying the diagnosis of typhoid fever, I have confined my remarks principally to those cases in which the primary attack has been accompanied by an unusual paucity of symptoms—cases in which the fever has run a course unaccompanied by symptoms denoting the extreme gravity of the illness from which the patient is truly suffering. From my own experience many of such patients first come under our notice when suffering from what we should usually term a “relapse.” I think a more scientific expression would be “secondary attack,” the primary one having been wanting in definition and ordinary symptoms. I believe these cases to be of great danger; the

mortality is large, and it is of the greatest consequence that every means in our power should be adopted to establish a correct diagnosis at as early a stage as possible. Many of our hospital cases do not apply for advice in the primary stage, but in private practice we often have the opportunity of placing our patient under treatment at an early period of illness.

It remains now to ask, What symptoms are there in any of these ambiguous anomalous conditions which should put us especially on our guard against typhoid fever? As far as my own experience leads me to express an opinion, I should affirm that there is but one symptom invariably present which can be accepted as an unfailing guide. Of course you are all well aware that I here refer to the symptom of pyrexia. And it is only by conscientiously seeking for the help of this symptom that we can hope to ascertain the true cause of what apparently is but a very slight indisposition. For the moment it will be well to put aside our ideas with regard to a typical typhoid fever chart.

Gentlemen, there is no such thing as a typical range of temperature when we apply the test to an individual case. But in all, excepting those of extreme rarity—namely, those of an apyretic type, of which our literature supplies a few of undoubted nature—there is a continued fever, maybe a temperature of 99° or normal in the morning, and only rising slightly towards the evening. Granting that our examination fails to find any other sufficient cause for constant pyrexia, I believe that in far the largest proportion we are right in regarding such a condition as caused by the poison of typhoid fever. And there are very few patients, should our diagnosis be incorrect, who from over-vigilance will suffer more than temporary discomfort. On the other hand, overlook the slight rise of temperature, treat the indisposition as due to overloaded bowels, to functional trouble of the liver, to headache, worry, and the like, and the danger becomes very great, and there is every chance of having a pathological investigation at some later date which, under other circumstances, possibly might have been avoided. Another trivial symptom of great value to me personally is the state of the abdomen. In every suspicious case—that is, where fever of but slight amount has continued for longer than three or four days—a full, careful examination of the abdomen in a good direct light should be insisted upon. Such examination will frequently be found to supplement our knowledge. Dr. Fagge speaks

of the abdomen being distended during the second week, but at an earlier date it more often than not presents signs of being out of order and is slightly swollen. Gurgling in the iliac fossa is a symptom, to my mind, absolutely without any point of significance; moreover, under no circumstances would I permit the symptom to be sought for in any patient under my own care. Again, in these mild cases the state of the bowels is of little help. I should myself say that constipation is more frequently present than diarrhœa, and is a symptom often leading to erroneous diagnosis. The difficulties of diagnosis have been a thousandfold increased during the past three or four years by the prevalence of epidemic influenza. In many instances it has been impossible within a week or more to decide as to the nature of the disease. At the beginning of this year two nurses were taken ill on the same day at the North-West London Hospital; they were admitted at the same hour; both complained of identically the same symptoms—headache and aching pains in the back and limbs; their temperatures were alike, ranging from 102° to 103° Fahr. Each had the symptoms which we are accustomed to look upon as evidence of influenza. The attack in each case was a prolonged one, and my suspicions were roused as to the nature of the illness. On the seventh or eighth day one patient had lost her fever and was practically well; the other case continuing, proved to be a typical one of fever; but during the first seven days of illness there was not one single symptom which differentiated the case of the patient suffering from typhoid fever from that of her companion, who was passing through a prolonged and severe attack of influenza.

It remains for me now to say a very few words with regard to treatment, and to speak with greater exactness of the management of typhoid fever. Broadly, we are probably all in accord upon the general principles which actuate us in the care of these cases. With some of the details of treatment there is a diversity of opinion, and it is only upon such moot questions that I intend offering any remarks. Practically we meet with extreme views both as regards the treatment of the symptom of pyrexia and the troubles incident to the bowel disturbance, this bowel symptom being almost invariably constipation. The question arises whether we are to give aperient remedies or not. We also meet with different views with regard to the administration of alcohol. At the present time we are passing through a stage in the history of practical medicine in which the treatment of pyrexia assumes large

proportions. Daily we have antipyretics placed in our hands, and it is the fashion of the day to make great use of them. Those who have watched the epidemic of influenza, with its one highly-marked symptom—pyrexia—must have noticed the ill-effect of some of our directly antipyretic remedies, and I think this disease will be found to prove an apt illustration of the fact that pyrexia *per se* need not necessarily be looked upon as a serious omen. With regard to the treatment of typhoid fever I have never considered it necessary, in any single case under my own care, to do more than use simple means to control the temperature. In examining the temperature charts of the cases I find the pyrexia in many to have been severe—over and over again the record is 103° to 104° —but I may conscientiously say that I never saw harm ensue. The mortality of these cases is, as far as one can argue by comparison, very low; of the 116 patients I find that only eleven died (you are aware that the mortality as given by our chief authority, Dr. Murchison, is much higher than this—in fact, it is very nearly double that shown by my own cases). I have carefully examined into the cause of death among the fatal cases, and I think I may fairly conclude that a high temperature neither directly nor indirectly contributed to the fatal result; but, as far as my notes serve me, death resulted from the fact that the disease had not been recognised as of a serious nature before admission into hospital. Fifty-three patients were treated by me at the North-West London Hospital, of whom four died. Of these, one, a child who had been severely treated by means of drastic aperients, succumbed after a few days, the post-mortem examination showing a state of enteritis apart from the specific pathology of the case; another case was that of an intemperate potman, who had been considered to be suffering from acute delirium tremens and had been treated for that disease, the tremor being a pronounced symptom; the third case was that of a woman in the fourth month of pregnancy who aborted and died from peritonitis; and the fourth case was that of a child who, within a few days of admission, suffered from perforation, and who had evidently been the subject of fever for a fortnight or more before coming under treatment.

At the West London Hospital fifty cases, with seven deaths, have occurred under my care, and all these cases confirm the importance of an early diagnosis:—(1) In this case the patient was ill for three weeks before admission; (2) this patient had old cicatrized ulcers, the attack for which advice

was sought being evidently a secondary one; (3) the patient had been ill for fourteen days; (4) this patient was admitted to hospital suffering from peritonitis; (5) this was a secondary case; pus was present in the abdomen; (6) the patient had a sloughing ulcer, although death occurred within ten days of admission; and (7) a male patient past 50 years of age. This was a very severe case. His son was also in the hospital at the same time suffering from a very severe attack, but recovered.

The great mortality of fever cases, I believe, largely hinges upon the date at which the patient comes under appropriate treatment. Of the above fatal cases, with only one exception did any patient apply for advice at the hospital until practically having passed half through the normal stage of the attack. I am satisfied that an ordinary well-marked attack of typhoid fever is invariably accompanied by a high range of temperature, while pyrexia in by far the largest majority does not require vigorous interference—by which I mean that it does not require constant doses of antipyretics, such as antipyrin or antifebrin or the use of the cold bath. Attention to the bedclothes, repeated sponging—always grateful to the patient—with possibly quinine—and, from my own experience, I would add the use of alcohol—will be found sufficient to control the pyrexia in most patients. With patients passing through a very severe attack, who show a high-level range of temperature, there is probably some further cause for the high temperature, if not a definite complication. There will frequently be found a large area of ulceration, and the pyrexia may possibly be septic as well as specific. We note this high-level range of temperature in cases past middle life; it is invariably a symptom of evil omen. I say it is the fashion of the present hour to treat pyrexia alone as a symptom of the highest value, or rather as one denoting the greatest danger; but temperature as applied to the patient suffering from disease in many ways resembles heat as applied to inorganic bodies. We know of the specific heat of most matter. We should know of the specific heat of all diseases. We do know much with regard to the tidal range of the temperatures; do we know as much regarding their specific range?—that state of temperature which may mean death or alarming symptoms in one disease, or a mere ephemeral, passing phenomenon in another. For instance, there is no one here present who would not regard a high temperature in acute rheumatism as a most alarming symptom—a symptom to be attended to without the

delay of a moment. A patient whose temperature was 105° while under the influence of acute rheumatism would be regarded with intense suspicion, and steps would be promptly taken, whether by bath or the direct application of ice, to check any increase of fever. On the other hand, let me take a fever of which probably none of us have had much experience, and therefore it affords a very fitting contrast with regard to the treatment of pyrexia prevalent at the hour. I allude to relapsing fever, of which we have at least an abundant literature and clinical details upon which we can place absolute confidence. Now, one of the peculiar symptoms of relapsing fever is the high—unusually high—temperature, a temperature which exceeds that of either typhus or most other fevers. On this point I will proceed to quote our best authority, Dr. Murchison. He writes as follows: “The temperature commences to rise before the initiatory rigor and before there is any rise of pulse, and within twelve or twenty-four hours reaches 104° to 106° . It usually reaches its acme (105° to 108.7°) shortly before the crisis, and occasionally at this stage it rises up rapidly several degrees in a few hours.” Now come the important observations: “A circumstance of some importance in the pathology of pyrexia is the fact, conclusively established by many independent observers, that the high temperature of relapsing fever entails little or no danger to the patient and does not produce serious cerebral symptoms.” Dr. Murchison then quotes other opinions as to the absence of danger from the excessive pyrexia, and states that, with patients whose temperature ranged from 107° to 108° , in no single instance could any difference, beyond this one feature, be detected when comparing these cases with others in whom the temperature did not range so high. From the teaching of the hour it would seem impossible that such cases could exist without an appalling mortality due to the effect of the high temperature upon the body tissues. Nevertheless, you will find that the mortality of the disease is but slightly over 1 per cent. My own experience leads me to the belief that in a vast proportion of cases the pyrexia of typhoid fever does not require any urgent treatment. I have myself witnessed, in consultation, a patient enveloped, as to his abdomen, in a poultice of pounded ice. When seen by me he had been under treatment for several days and was moribund. As far as I could gather from the history of this patient there had been no symptoms denoting special gravity. The case appeared to be one of an ordinary nature. The effect of the constant application of the

ice poultice was depressing in the extreme. It certainly had the effect of reducing the temperature for a short time, but its application had no permanent result beyond adding much to the discomfort and irritation of the unfortunate sufferer.

The clinical course of any ordinary uncomplicated attack of fever will invariably be accompanied by a temperature ranging for many days between 102° and 105° . Is there any ground, is there an iota of evidence, that by attempting to control by extreme measures what is a normal physiological process under fever influence, we benefit the patient? Personally I feel strongly that there is not. Typhoid fever is essentially a fever with marked remissions. With cases in which the temperature is taken constantly during the twenty-four hours it is often a matter of surprise to note the extent of these daily fluctuations. I have noticed that each individual has, so to speak, his zenith point at a different hour, usually between 4 p.m. and 9 p.m. With the temperature taken morning and evening the zenith point is frequently missed, and the actual range of temperature may be far higher than that recorded by the chart. I have a chart before me which shows this very clearly. The patient, a young man aged 22, was suffering from a severe attack of fever. His medical adviser, visiting him in the afternoon, was alarmed at finding the temperature 105° . It had been 102° at 9 a.m. When I saw the patient the temperature was still 105° , but there was no other symptom denoting alarm. He was rather actively delirious and had had no sleep. The day was the sixth of the disease. After being sponged with tepid water and given two ounces of brandy, the temperature fell to 103° , and did not again rise to 105° during the course of the attack. If the chart had been consulted with reference only to the morning and evening temperatures this extreme point would have escaped notice. I do not think we always sufficiently recognise the importance of nerve repose in treating our fever patients. The nervous system is in a state of unstable equilibrium and is easily influenced by outward causes which in health would pass unnoticed. We all have had opportunity of noticing this with the pyrexia of a simple catarrh. How easily a night's rest is effected by very simple means! How a trifling mental difficulty becomes magnified when influenced by but a slight pyrexia! *A fortiori*, a patient suffering from continued fever requires our earnest solicitude in shielding him from all disturbing influences, and I am often surprised to find that patients passing through the milder forms of

fever are permitted to transact business, to receive letters and telegrams, and otherwise have their readily excited nervous systems unduly disturbed by apparently the most trifling causes. The fever state is essentially one calling for the absence of all external irritants. It is essentially a state in which extreme rest and quietude are urgently needed. A darkened room, freedom from visits of kindly disposed friends, and the absence of all letters, papers, books, etc., are points which tend to help us in our treatment. Is it not true that frequently we find that patients who are delirious during the acme of their illness do better and are more amenable than those whose nervous systems are more keenly alive to any disturbing influences? In illness of most kinds, but perhaps especially so when the disease is accompanied by fever, there is an instinctive desire on the part of the sufferer for rest and quiet. In fact, our animal nature asserts itself, and, like the wounded stag which seeks the remote and lonely corrie wherein to lay himself down and die, so our own prompting is for perfect repose. If this call for repose be interfered with we may frequently find undue excitement as the result. With this excitement there will invariably be a rise of temperature. It has been stated with reference to the treatment of typhoid fever that a dose of calomel at the commencement of the attack will cut short the fever. I believe this practice is followed by some physicians; others may give castor-oil. Personally, I have been most strongly impressed with the advisability—from my own experience I should add the importance—of refraining from any kind of aperient drug during the entire course of the fever. Some cases may be benefited by enemata; but I cannot say that those cases treated with constant injections—that is, when given every two or three days—have been any better than those in whom the bowels have been disregarded. I have never given a patient suffering from typhoid fever aperient medicine, and I have no cause for regretting my firmness on this point. I should add that among my cases constipation is as common as diarrhoea, and I can affirm with confidence that it has not been with the constipated cases that any abdominal inconvenience, such as pain or flatulent distension, has been complained of. Two years ago three patients came under my notice in the same house; all were suffering from fever—one being a servant, who was removed to hospital, and the others two children, one of whom developed the attack away from London. All three cases were complicated with constipation, the child who remained

in London very markedly so. She was treated *ab initio* without any aperient remedy, and there was no pain or inconvenience. There was no extreme distension of the abdomen. An enema was occasionally used at the termination of the attack. The child who developed fever away from London was treated from a different standpoint. Castor-oil was freely given. The fever was severe, and there was great abdominal distension, almost amounting to tympanitis. After the constipation was relieved by the aperient, diarrhœa became a troublesome complication, and the child was very ill. In consultation it was impossible to avoid making a mental comparison as to the two methods of treatment. You probably know the words of Sir William Jenner, who, in his well-known lecture on the treatment of fever, speaks of "that dose of medicine which irreparably injures the bowels." As I have stated in an earlier part of my address, a severe pathological lesion—in other words, a much ulcerated bowel—is not necessarily accompanied by extreme or even moderate diarrhœa—rather the reverse—and, as I have shown you, a patient with an intensely ulcerated bowel may have constipation as a prominent symptom. If I had the choice of one remedy only to assist me in the management of a case of typhoid fever I should without a moment's hesitation select alcohol. It is to me incomprehensible how any physician with a knowledge of clinical medicine can be found willing to undertake the responsibility of the management of fever cases without the use of alcohol. I cannot believe that diffusible stimulants, such as ammonium carbonate or any preparation of ether, can therapeutically take the place of a well-matured spirit, whether given as alcohol or wine. In my own practice I have been accustomed to use alcoholic remedies with a free hand. Unless I am absolutely incompetent to form a correct judgment on such a matter, I feel convinced of their efficacy. I do not believe in routine administration; our hospital method is pernicious and undoubtedly leads to much abuse and waste. A physician visits his patients but twice a week and orders stimulants, orders them for the immediate occasion, and but rarely intends the remedy to be continued *de die in diem*, as we find is so usually the case. The administration of alcohol to some patients is one of the most important points in the entire treatment of the case; the dose may, and generally does, require constant alteration. A very severe case of fever under my care a few months ago was complicated with the most extreme irritability of tendons. I had never before seen

such incessant and general muscular spasms. The note on the case taken by the medical attendant states: "Subsultus universal; almost every tendon jerking; well marked in erector spinæ." The patient was a woman past forty years of age, of very abstemious habits. During the stage of muscular spasm brandy was largely made use of—half an ounce every hour, with an occasional extra dose. The remedy acted like a charm, giving intervals of rest from this most distressing and painful complication. Although the amount of stimulant taken was very large, no untoward symptoms followed its free exhibition. Surely if the remedy had been harmful there would have been some symptom denoting its baneful action. The following is a striking instance of the beneficial result following a large dose of alcohol. A girl seventeen years of age, suffering from a rather severe attack of fever, in which the temperature ranged high on the afternoon of the twenty-first day of illness, became more feverish, the pyrexia being accompanied by delirium. I happened to be away from London, and the patient was seen in my absence by another physician, who found the temperature to be 105° Fahr. He ordered a wet pack. When I saw the patient she had been in the pack twenty minutes, and the temperature in the axilla was 105.2° . The feet, hands, ears, and nose were cold to the touch; the pulse was almost imperceptible at the wrist. The patient during her rambling delirium complained of feeling "so cold." I gave an unmeasured quantity of brandy (presumably about four ounces), removed the pack, and placed hot-water bottles to the feet. Within a short time the temperature was lowered, the patient falling into a gentle sleep, from which she awoke free from delirium on the following morning, the temperature being 99° .

Having regard to the use of alcohol in the general treatment of disease, there is, as you are all probably well aware, what we may well call a gigantic experiment carried on in our midst. A hospital exists in London for the treatment of all classes of diseases without the use of any form of alcoholic stimulant. Turning to the official record emanating from this institution, I find that during the years 1886, 1887, and 1888, there were thirty-five cases of enteric fever under treatment, with a mortality of 29 per cent., ten patients falling victims. During the years 1889, 1890, and 1891, twenty-five cases were received, with five deaths, or a mortality of 20 per cent. The London Temperance Hospital is within a short distance of the North West London Hospital, to which I was attached as

sole physician. During this period there were thirty-nine patients under my treatment, four cases proving fatal ; these fatal cases have been already referred to. Now, both hospitals serve the same district ; the patients belong to the same class, and the comparison between the two death-rates is as fair and reasonable as any such comparison is possible to be. In the one institution alcohol was administered as required, often in large quantities ; in the other no such remedy was made use of. With the data at my command I cannot but feel that with regard to the treatment of typhoid fever at the London Temperance Hospital patients do not receive that help which the experience of by far the largest majority of physicians would dictate as being essential for success. Since writing these lines Sir William Jenner's valuable lectures and addresses have been placed in the hands of the profession ; and with regard to the use of alcohol in typhoid fever the opinion of that learned physician ranks as high as, if not higher, than any other that can be quoted. He writes : " I may sum up my experience in regard to the use of alcohol in the treatment of typhoid fever thus : its influence is exerted primarily on the nervous system, and through it on the several organs and processes—for example, the heart and general nutritive processes—changes on which the rise and fall of temperature depend. In judiciously selected cases it lowers temperature, increases the force, and diminishes the frequency of the heart-beats ; it calms and soothes the patient, diminishes the tremor, quiets delirium, and induces sleep. . . . It is in exceptional cases only that more than twelve ounces of brandy in the twenty-four hours can be taken without inducing some of the worst symptoms of prostration. Nearly all the good effects of alcohol where it is indicated are obtained by four, six, or eight ounces of brandy in twenty-four hours. . . . *Alcohol, by the influence it exerts on the nervous system, is of the greatest value in the treatment of typhoid fever.*" (The italics are mine.) Such, then, is the matured weighty opinion of the highest possible authority. And yet we have a hospital in our midst asserting that it possesses means and remedies which, if not superior, are equal in efficiency to the proscribed drug, alcohol. Doubtless, the institution shelters itself under what may be called an urgency order—namely, that alcohol, if ordered by the medical officer, can be obtained for any patient on entering the particulars of the case in a book kept specially for that purpose. During the six years of which the official reports lie before me, and to which period I have already

referred, in no single instance in connection with the sixty patients under treatment for typhoid fever was a dose of alcohol considered beneficial.

Mr. Swinford Edwards, as ex-President, proposed a vote of thanks to the President, which was seconded by Dr. Campbell Pope.

The *President* briefly replied.

Meeting held Friday, November 3rd, the President, Dr. Donald Hood, F.R.C.P., in the chair.

Dr. Phineas Abraham read a paper on

ALOPECIA AREATA,

and showed cases of the disease.

Although the diagnosis of alopecia areata in a large majority of the cases is a matter of no difficulty, it is not so easy in some instances to isolate the disease clinically and pathologically from certain other affections of the hairy portions of the skin. The fact, indeed, is becoming more and more apparent that the localized falling of the hair, or circumscribed bald areas which we commonly call by the name of "alopecia areata," may be an effect or result of separate, and of various, causes; in other words, more than one distinct disease may have alopecia areata as a prominent feature or symptom.

A localized alopecia, too, may result from external mechanical causes—such, for instance, as the bald patch which we have all seen on the backs of babies' heads from the constant pressure of the pillow, or (as some of us have seen) on the backs of ladies' heads in the old chignon days. In this connection, I should like to ask the members present if they have noticed that there is nearly always (as was pointed out to me some time ago by my friend Mr. Rickard Lloyd) a perfectly glabrous or smooth patch on a man's shins just above the upper part of the boot? I have rarely failed to observe it when looked for in men, but I have made no observations on the point in the case of women's legs. Is it due to the friction and constant pressure of the lower tightly woven part of the pants and upper part of the socks?

The localized alopecia, however, to which I wish particularly to refer in these remarks, is that which occurs primarily on

the scalp and hairy parts of the face, and more rarely elsewhere. I shall leave out of consideration all congenital cases, and those temporary or permanent alopecias, partial or diffuse, resulting from fevers and constitutional affections, such as syphilis and leprosy, or from the local lesions of erythematous lupus, morphœa, the various dermatites, etc.

The alopecias, indeed, to which I shall allude, present a sufficient number of clinical and pathological features in common to justify us—in the present state of our knowledge—in placing them in one category, although, as I have stated above, we cannot admit that they are all etiologically identical.

The literature of the affection, from the time of Willan and Bateman onwards, is instructive from more than one point of view. As with many other diseases, we find great authorities from time to time publishing some observation, or supposed observation, upon a case or two, and—unconsciously proceeding “from the particular to the universal”—forthwith enunciating a general theory, under which, of course, all cases must be made to fit! Willan and Bateman classed this disease under the pustular “porrigos,” and Willan, in his edition of 1814, thus speaks of it: “In the *Porrigo decalvans* the hairs suddenly fall off, leaving bald patches which are neither inflamed nor discoloured. Small pustules at the root of the hair are said to have preceded in some cases. I am doubtful respecting their existence in all.” We rarely see anything like pustulation nowadays, although a few cases, as Brocq has shown, are undoubtedly the result of pustular folliculitis or perifolliculitis. The great French dermatologist Bazin accepting, and as he thought, confirming, the observations of Audouin and Gruby, laid down that “*Teigne Pelade*” as he called it, was due to a specific fungus “*Microsporon Audouini*.” The general belief in this fungus lasted—in France at any rate—for years, in consequence, no doubt, of the common tendency in our profession to accept, without personal investigation or corroboration, all that our great men may say.

Within the limits of time and space at my disposal, I cannot attempt to discuss all the various theories and observations, supposed or real, which have been published in connection with alopecia areata. I shall only allude to the two chief theories which have been long extant—one being that all the cases are of parasitic origin, the other that they are all neuropathic. The former theory has had its chief votaries

in France, the latter in Germany, but we find, even in those countries, that accurate observers have from time to time objected to the prevalent view, and have stated their opinion that some of the cases are probably of neurotic and others of parasitic origin. For instance, in France, such men as Leloir, Brocq, and others, admit a trophoneurotic group of cases, and in Germany, Lassar, Unna, Eichhoff, and others now allow that many cases of alopecia are parasitic. In America and in this country medical opinion is much divided, but here, as elsewhere, the dual theory appears to be rapidly gaining ground. Comparatively recently, a novel view as to the real nature of the majority of the cases of alopecia has been independently placed before the profession by two high British authorities, Mr. Jonathan Hutchinson and Dr. Radcliffe Crocker, who have published their firm belief that there is an intimate etiological relation between ringworm and alopecia areata. Mr. Hutchinson considers that alopecia is "in fact a sort of modified ringworm, or at any rate a sequel to that disease," and that in a large majority of the cases "it occurred in those who had previously suffered from ringworm" ("Arch. Surg.," 1890-91). Dr. Crocker is equally explicit, and he goes further by stating that he believes that the fungus of *tinea tonsurans* can be "demonstrated in recent cases of alopecia areata if rightly looked for." At the same time, Dr. Crocker admits that some cases must be undoubtedly regarded as purely neurotic. Since I have known of these views, I have inquired, as far as I could, into the histories of all the cases of alopecia that I have come into contact with during the last two years, and I have examined microscopically a considerable number of them. I regret to say that I have hitherto found the trichophyton only in a few cases, those, namely, which showed other evidence of the affection being really *tinea tonsurans*. I have not, however, given up the search; it is a pretty theory, and I should like to help in its proof. At first it seemed to me that I could get in comparatively few cases a history of previous ringworm, but I must confess that the evidence seems to me to be increasing, and the statistics I now present undoubtedly lend some support to Mr. Hutchinson's and Dr. Crocker's contention. The total number of cases to which I shall at present refer is 137 (68 males and 67 females)—occurring at Blackfriars, 82;* the Western Skin Hospital, 43; the West London Hos-

* I am indebted to my friends Mr. Hutchinson and Mr. Waren Tay for allowing me to refer to these cases.

pital, 1; and in private, 11. The accompanying table illustrates the evidence that I have obtained in these cases in regard to—(1) A history of previous ringworm in the patient. (2) A history of previous ringworm in members of the patients' family or among their friends. (3) A history of alopecia areata in other members of the family or friends. (4) Evidence of marked seborrhœa, and (5) A history of severe headaches or neuralgia.

	At Black- friars.	West Skin Hosp.	West London Hosp.	Private.	Total,
1. No. of Cases	82	43	1	11	137
2. Previous Hist. of t.t.	8	9	0	1	18
3. Hist. of t.t. in family, etc.	14	10	0	2	26
4. Hist. of alopecia in family, etc.	17	9	1	1	28
5. With marked seborrhœa	6	6	0	3	15
6. With marked headache	7	4	0	2	13

I shall transcribe extracts from my short notes on a number of the cases which come under categories 2 and 3, and it will be seen that, while several of these indicate a strong *probability* of the alleged connection, in others the evidence is slender and only shows that there is a *possible* relation between the two diseases :

1. "A. K., f., æt. 10. Complete alopecia one year. Had tinea tonsurans when four or five years old, and another child in the family had it."

2. "A. G., m., æt. 7. Treated for a year; eighteen months afterwards came with tinea tonsurans on one of old bald situations; fungus well marked. One little sister has had tinea tonsurans, and another alopecia."

3. "F. M., f., æt. 14. Last summer slept with a child with tinea tonsurans."

4. "E. B., f., æt. 14. Seven years. Commenced to fall after typhoid, and again after an attack of scarlatina. Mother says three children had ringworm after the scarlatina."

5. "J. B., m., æt. 49. Two months; a child of his had tinea tonsurans three or four years ago."

6. "R. D., f., æt. 38. Commenced nearly twenty years ago (for four years complete). An elder sister had ringworm when seven years old. Great irritation of scalp before bald places appeared."

7. "M. W., f., æt. 11. Ringworm on body and neck three years ago, but none on head."

8. "G. M., f., æt. 44. For ten years. No tinea tonsurans, but brother's child had it in same house; was much worried ten years ago; leucoderma where the hair has fallen."

9. "E. T., f., æt. 26. In childhood lived with a cousin who had ringworm."

10. "M. T., f., æt. 20. Three months. A brother had ringworm fourteen years ago."

11. "F. W., f., æt. 9.9 months. Ringworm six years ago; the mother has just developed a patch of alopecia."

12. "H. S., m., æt. 31. Some nephews had ringworm formerly."

13. "J. C., f., æt. 12. Other children in the house had ringworm a year ago."

14. "D. B., m., æt. 35. Commenced seven years ago. Says he had a 'ringworm' on the nose when a boy at school."

15. "H. A., m., æt. 14. Nine months. Several large patches; no clavate hairs, but numerous stumps; no fungus can be found; had ringworm four years ago, and supposed to be cured; the smooth bald patches came last autumn. Eighteen boys out of twenty-two in the same orphanage have been similarly attacked since January. Two other boys have since developed tinea tonsurans, and the matron alopecia areata."

16. "A. W., f., æt. 42. Alopecia nearly complete, but never quite; commenced when thirteen years old; never had ringworm, but brothers and sisters had it as children."

17. "S. P., f., æt. 45. Complete; commenced three years ago. No history of tinea tonsurans herself, but two of her children with it three years ago."

18. "A. B., m., æt. 21. Had ringworm when fourteen years old."

19. "C. T., m. Had tinea tonsurans seven years ago."

20. "W. D., m., æt. 26. For three years; has had ringworm, and a little brother now attends with it."

21. "H. C., m., æt. 38. Complete; eighteen months; had ringworm when eight years old."

22. "A. M., m., æt. 18. Two months; ringworm when four years old."

23. "E. L., f., æt. 25. Two years; since an attack of anæmia; had ringworm on arms when a child, not on head."

24. "G. B., m., æt. 22. Ringworm when thirteen; now much seborrhœa."

25. "W. S., m., æt. 15. Ten months; three sisters had ringworm some years ago."

26. "M. W., f., æt. 19. Six years; bad headaches; ringworm among schoolfellows."

27. "H. S., m., æt. 11. Bare spots for some months; no broken hairs or evidence of fungus; a brother with undoubted ringworm."

28. "E. B., m., æt. 17. Extensive for six years; never had ringworm, but a young sister had; there was much seborrhœa before the hair fell, and severe headaches."

29. "C. P., m., æt. 45. Only moustache; a patch on the head two years ago, and tinea on the cheek four years ago; puts down present attack to being shaved in a barber's shop."

30. "E. C., f., æt. 6. Six weeks; said to come after influenza; a little girl in same school attending with tinea tonsurans."

31. "H. S., f., æt. 15. A sister attended with ringworm last year."

32. "L. R., f., æt. 12. Eight years ago quite bald; hair since growing in patches; father similarly affected many years, also a friend next door; a little brother now has ringworm."

33. "E. D., m., æt. 10. No history of tinea tonsurans in patient, but a brother had it before this child was born, and some boys now in the same board-school."

34. "C. K., f., æt. 25. One patch, two months; had a patch three years ago; thinks had ringworm when a child; a brother had three patches of alopecia a year ago."

35. "W. C., m., æt. 20. A brother had ringworm ten years ago."

36. "J. C., m., æt. 12. A brother has had ringworm; patient has been sitting at school next to a boy with a bald patch."

37. "A. C., m., æt. 13. Small patch of alopecia on site of old ringworm seven years ago."

From the table it is apparent that in 44 instances out of the 137, or 32 per cent. of the cases, there has either been previous ringworm in the patient or other members of the family, or persons more or less in contact with him or her have been affected with that disease.

Negative evidence may go for very little, but at present I feel sure that in some cases of alopecia—which are clinically and microscopically indistinguishable from the others—no trace of any connection with ringworm in the patient or his

friends is to be discovered. The following instance has occurred in my own family, and I can vouch for the facts. In a household of ten children, tended by three nurses with the most scrupulous care as to cleanliness, and with constant medical supervision, a little boy suddenly developed a bare patch on the head. He was treated by Sir Erasmus Wilson for alopecia areata, and cured for the time being, but with recurrence from time to time until the boy was grown up. He married, and his little boy, æt. 4, was brought to me with a patch of undoubted alopecia. In neither case had there ever been any trace of ringworm in the household, and neither ringworm nor alopecia areata has ever been known amongst the other members of the family. Neither father nor son, when the disease first appeared, had been going to school.

In at least twenty-seven of the total number of cases there is a clear history of other members of the family or intimate friends having been affected with alopecia, a fact which, in my opinion, points to the probability of the infective nature of one form, at any rate, of the disease. It is true that in a large majority of the 137 I could discover no evidence of anything of the kind, and that even among these twenty-seven several are of doubtful value in proving contagion, because they have occurred at very long intervals of time, and occasionally in two members of a family or friends who have been long living apart; but some of the cases are undoubtedly very suggestive in this regard.

The following is an instance of possible contagion from an animal: H. H. B., æt. 39, a coachman, three years ago was attending for six months a horse from whose withers patches of hair had fallen. The man's hair shortly afterwards also began to fall, and the patches have continued to increase in size in spite of treatment with stimulating lotions, etc. With a few applications of Burt, and daily inunctions with carbolic and salicylic ointment, the hair is rapidly returning.

The occasional occurrence of epidemics of alopecia areata in regiments and various institutions has long been known, and many instances have been made known to us by Besnier and other French authorities. In America, too, an interesting instance has been lately recorded by Drs. White, Bowen, and Putnam. Years ago Bateman wrote: "The disease has been seen to occur, in one or two instances, in a large assemblage of children, among whom no other form of porrigo prevailed," but authentic evidence of outbursts of the sort is certainly very rare. Dr. Hillier's series of forty-three cases more or

less suddenly appearing in the girls of a large parochial school are often quoted, but doubt has been expressed as to their being not really alopecia cases, but ringworm, because in some of them spores were found. In that case they illustrate the alleged relation of the two affections. Quite recently, a somewhat analogous series of cases has come under my notice which, in accordance with our particular theory, we may either take, on the one hand, to show that alopecia areata is at times a very contagious disease ; or, on the other, that alopecia areata and ringworm are practically due to the same cause. Four boys were brought to me at the Western Skin Hospital with bald patches on the scalp. Case No. 15 above is the note of one of them—the boy that I am able to show to you to-night. This boy, it seems, had ringworm four years ago. It is said to have been cured, but bald patches came last autumn and have remained ever since. He entered the orphanage in December, and was passed as having no contagious disease. Since the commencement of this year, eighteen of the other boys, out of the total twenty-two in the orphanage, have developed bald patches, and in most of them the hair has grown again under the influence of stimulating lotions. In none of the four scalps could I find evidence of a trichophyton ; the patches were quite smooth, some of them showing short but not clavate stumps near the margin, and like the loose hairs in the neighbourhood, with atrophied roots. Three weeks ago the matron of the orphanage informed me that she was afraid that she had caught the same disease, and I certainly found on her head three small patches of coming alopecia, without broken or clavate hairs or demonstrable fungus ; the hairs were simply falling out with atrophy of the roots. She remembered that on one occasion she was interrupted before washing her hands after attending to the boys' heads, and she thinks that she then touched her head with her hand. There was subsequently slight itchiness before the hair commenced to fall. The matron has informed me that in the spring there were two other boys in the orphanage with undoubted ringworm ; and a boy (whom I am also able to show to-night), who was recently admitted to the establishment, has also come under my care within the past few weeks for manifest tinea tonsurans.

For a long time I have observed that some cases of alopecia areata have been the subject of extensive seborrhœa, and I quite agree with M. Brocq, who considers that some alopecias

may be the sequel to that affection. The case of a lady with multiple patches was a marked instance of the connection. I found, moreover, that several members of her family were largely troubled with scurf of the head.

In comparatively few of the 137 cases (only thirteen) is there any marked history of previous neuroses; and in those that have complained of severe headaches I cannot distinguish any clinical or pathological points of difference from the others, *e.g.*, I have just as frequently seen the short club-shaped hairs in such cases as in the rest. I am aware that this is not in accord with the view expressed in certain textbooks. One patient that I am exhibiting to-night illustrates this point. In her case there is considerable atrophy of the skin, reminding one of the scar of erythematous lupus, and around one of the bare places there are distinctly clavate hairs. Another spot shows evidence of a folliculitis. She has suffered terribly from severe headache, and there has also been seborrhœa. She is the mother of nine children, in none of whom has there ever been ringworm or alopecia, nor does she know of anyone affected with anything of the kind.

With regard to treatment, I believe that in the majority of the cases parasiticide ointments and the cautious occasional application of Burt's fluid, as practised at Blackfriars, are really serviceable. I have seen success in cases which have been affected for years, and were apparently hopeless. I often use an ointment containing carbolic and salicylic acids, and sometimes intermit with stimulating lotions, such, *e.g.*, as the "lotion excitante" of the Saint Louis Hospital. I have tried Dr. Bulkeley's carbolic acid method in about twelve cases, but without apparent benefit; in some of the patients great suffering was caused. Where I wish to impregnate an area of scalp with a parasiticide fluid I am now making trial of a method which is founded upon one used in the arts for the creosoting of logs of wood and railway sleepers. With the apparatus shown, which was constructed for me some months ago by Messrs. Maw, Son, and Thompson, I produce a partial vacuum over the affected part—previously epilated, shaved, and washed severally with soft soap and hot water, alcohol and ether—and then let in the fluid by the influence of the atmospheric pressure. It is curious to observe how the spots implicated come into view by a hyperæmia of the subjacent cutis—a fact, no doubt, of some pathological significance. I have only tried it, so far, in a few cases, and can say nothing as yet as to results.

The *President* roughly divided the disease into three classes : neurotic affection of definite areas, specific poison affecting nutrition, nutrition affected by an organism.

Drs. Startin, Eddowes, Dockrell, Keen and Squire joined in a discussion of the paper, and Dr. Abraham replied.

Dr. W. S. Colman read a paper on

NIGHT TERRORS.

On the borderland of epilepsy we come across several conditions which, though allied to it, are in most cases generally recognised as independent complaints.

We have, for example, migraine, the subjects of which are numerous, and who show little tendency to become epileptic. Still, its connection with epilepsy is shown, not merely by many features of the attacks, but by those cases, by no means infrequent, in which it is impossible to say whether the attacks are epileptic or migrainous in character.

So with night screaming. It is a very common condition, and comparatively few subjects become epileptic; but in some cases the night terrors appear to be epileptic phenomena. Another analogy to migraine is found in the close connection each has with disease of another organ, migraine being frequently greatly intensified, if not caused, by errors of refraction; while night screaming in the great majority of cases is caused by some disturbance of the alimentary canal, the removal of which will often bring about complete recovery.

The condition is much more common in childhood, but I have notes of several typical cases in adults, including one man of 60.

At all ages the attacks have one common feature, an indefinable overpowering sensation of fear and dread, not infrequently accompanied with a sense of fruitless laborious efforts to breathe. This is followed in children by loud screaming and cries for help, while adults for a few seconds feel paralyzed by fear; but as soon as they can shout the spell is broken, and only a feeling of depression remains. The attacks of sobbing at night, which so often trouble patients affected with some depressing complaint, such as heart or lung disease, are probably of this character.

In many cases, however, there are present definite hallucinations, almost invariably of vision, but sometimes hallucinations of hearing and common sensation are added.

The onset of such an attack as this is usually sudden, an hour or two after going to bed. (In only one of my cases was any warning noticed, and in this it took the form regularly of irritability of temper, and pain in the chest on the preceding day.) The child springs up, screaming, and calls out, frequently running into adjoining rooms for protection, and exhibits every physical manifestation of terror. He clings to his mother, and with staring eyes directed towards the imaginary object of alarm, he trembles in every limb, his body is bathed in perspiration, and he continues, often for an hour, to clamour to be guarded from the cause of his terror (which he still sees, even if the room be brightly lighted, and although he recognises his parents). After the attack he frequently passes a large quantity of pale, limpid urine. As soon as he is calmed he usually falls into a very sound sleep, and more than one attack in a night is rare.

A few nights later the attack may be repeated, with the hallucinations the same, or slightly modified. Children are almost as terrified by these subsequent attacks as on the first occasion, but older patients soon get accustomed to them, and recognise at once that the objects are imaginary.

There is in many cases in the morning accurate recollection of the hallucinations, and of all that took place after the screaming began; but sometimes nothing is remembered, and I am inclined to think that this is more common among the epileptic cases.

Illustrative Cases of Severe Attacks.

1. Case of a child two years old. He had previously enjoyed good health. In his first attack he woke up and screamed out that someone was in the room hurting his finger. He kept pointing to where this person was, and continued to scream for some hours, and although recognising his parents, he continued to see the phantom also. Three days later he had a second similar attack, and said that his finger was not only hurt, but bleeding, and pointed to imaginary spots of blood on the sheets. The attacks became shorter and less alarming under treatment, he had no further hallucinations, but simply woke up and began to cry.

2. Annie F., æt. 6. Intelligent and quick. For some time has had attacks in which she sees black faces, varying in

number from one to four, her alarm being proportioned to the number. These black faces grimace at her, but do not alter their position, appearing to be on the wall opposite her bed. She never sees body or arms.

3. Frances F., sister of the above. Also sees the black faces in attacks. They are on the opposite wall, but to the left, and never straight in front. In her case they never grimace, but alarm her by moving towards her. She never sees a body or arms. Both rapidly recovered under treatment.

4. Geo. M., æt. 60. Has only had attacks recently. He starts up screaming, and sees people moving about the room, but can only discern the faces, hands, and feet, which retain their proper relation to each other, but the trunk and limbs are invisible.

5. A well-known physician tells me that, when a student, he was seized one night with a sensation of respiratory distress, and on waking with an effort, saw the tail-end of a dog disappearing through the doorway. The hallucination was so vivid that he got up and searched the house for the intruder. On subsequent nights the same thing was repeated, but it now excited no fear; he merely said, "There's that wretched dog again," turned over, and went to sleep again.

6. The most serious and protracted case of which I have notes is that of a girl, æt. 25, admitted into Queen's Square Hospital under the care of Dr. Bastian. She suffers from petit mal, and has had one severe "fit," which was probably epileptic. She has suffered from these attacks since she was four months old. She goes to bed feeling quite well, and between twelve and one a.m. screams and jumps out of bed. The cause of her alarm is not constant, but is usually one of the following. She frequently sees a woman with her face concealed by a shawl thrown over her head. She comes to the left side of the bed, puts out her hand, and then vanishes. Once she spoke, but the patient does not recollect the words. Sometimes she feels unseen arms around her, trying to drag her away. She never sees the persons. On one occasion she saw a white bust on a pedestal on her left, about twelve feet from her. As she looked at it the features began to grimace and alarm her. She also has frequent attacks which evidently correspond to the petit mal from which she suffers during the day, and which consist mainly of vertigo. She wakes up screaming and calling out that the ceiling is falling, and on one occasion she was found standing trying to sup-

port the ceiling by her hands, and calling loudly for assistance. Since being put on bromide of potassium, four months ago, she has been quite free from these night attacks.

Character of the Hallucinations.

It will be noted that the hallucinations are almost invariably those of vision, although in rare cases those of hearing and touch are added.

The phantoms are, as a rule, living things, and hardly ever inanimate objects; and among children, dogs and black men, with whom they are so often threatened, are especially common. One very curious feature about the hallucinations is that only *part* of the objects is seen. Faces are most frequent, but hands or feet only may be distinguished. Sometimes the whole head is seen; sometimes the bust.

Another feature, which has been frequently observed in connection with hallucinations, is that the phantoms appear on one side of the individual, and rarely straight in front of him. This has been regarded as indicating that only one hemisphere was affected, but the evidence is not sufficient to warrant a definite conclusion on the point in these cases.

The extreme vividness of the hallucinations, even after the patient is roused, has been referred to. Sometimes the mental shock is so great that the effects persist for days, and death is even said to have occurred owing to a mental shock from an attack of this kind. The artist, Spinello Aretino, was at work on a fresco, part of which is in our National Gallery, in which he depicts Lucifer changed into a most hideous beast. He took immense pains to make him frightful and horrible. We are told that the figure he had painted appeared to him in his sleep, demanding to know where he had seen him looking as ugly as that, and wherefore he permitted his pencils to offer him so deadly an affront. The shock was so great that he only survived it a short time.

Treatment.—The treatment of this condition in the majority of cases is simple and speedily successful.

The first indication is to attend to the condition of the alimentary canal. Late meals must be prohibited, and all indigestible articles avoided. A mild laxative mixture should be given, and rhubarb and soda in some palatable form

appears to give much the best results. If the stools are pale, some gray powder may be given as well.

In the large majority of cases this will be found sufficient, but if there is restlessness at night, or if there is any reason to suspect a tendency to epilepsy, a moderate dose of bromide of potassium may be given every night, about an hour before bedtime.

Drs. Donald Hood, Masters, Clemow, Roche Lynch, Andrews, Ball, and Mr. Stephen Paget took part in the discussion.

Dr. Colman briefly replied.

Mr. Percy Dunn showed a case of extensive staphyloma of the sclerotic and cornea. The patient was a man, *æt.* 71, who had received an injury to his right eye when he was a boy of ten, and since then the staphylomatous condition had developed. For the last forty years the patient averred that the condition of his eye had remained in appearance the same. There was no pain, and he suffered no inconvenience from it saving that arising from the loss of sight.

Dr. Schacht exhibited a specimen, showing one of the dangers of tents. There was a perforation of the cervix into the broad ligament, caused by a tent, which had not entered the internal os. It had caused a small slough in the position referred to, and the patient died of septicæmia. The tent had been employed for an intended removal of uterine fibroids.

Dr. Amand Routh deprecated the use of tents, preferring rapid dilatation with Hegar's bougies.

Dr. Schacht said this case was more suitable for tents, as the cervix was affected in the general fibrosis.

Dr. Clemow showed a tapeworm for *Dr. Campbell Pope*, which was 27 feet 5 inches in length.

December 1st, *Dr. Donald Hood*, President, in the chair.

CLINICAL EVENING.

The **President** read the notes of a case of glanders which was fatal in ten days. No history of injury was obtainable. The arms were first affected, but there were no papules until three days before death. The nose and lungs were extensively involved, also the right forearm.

Dr. Tims.—A case of scleroderma diffusa. The patient had been under treatment with massage and glycerine, and had considerably improved.

Mr. Stephen Paget showed a case of traumatic cephal-hydrocele in a child.

Dr. P. Abraham exhibited a case of probable bromide rash. There was no definite history of bromide, but the patient had been taking medicine from a hospital for six months previous. He also showed a case of rupia. The patient had contracted syphilis in India three years ago, and had had similar sores as secondary manifestations.

Dr. Steer showed a case of Raynaud's disease. The right hand was first affected, and then the left, also the ears and toes; blisters appeared on the knuckles, which had left scars. The most noticeable feature was that of absorption of the phalanges of hands and feet. The last year she had got no worse.

Dr. Seymour Taylor favoured the view held by those who pronounced arterial spasm as the cause, adducing the anatomical fact that the thumb and little finger were better supplied with blood and very infrequently affected.

Dr. Abraham concurred with the views of the preceding speaker.

Drs. May, Ball, Clemow, Savery, and the *President* also joined in the discussion.

Mr. Bidwell showed a case of ostitis of humerus, and three cases of excision of lupus with immediate skin-grafting.

Mr. Paget showed a case of ankylosis of spine after injury, also a peculiar condition of the patient's foot, which was generally larger than the other, and colder.

Mr. Swinford Edwards showed a case of probably rapidly growing cystosarcoma of the hollow of the sacrum.

Meeting held Friday, January 5th, Dr. Donald Hood, President,
in the chair.

The following pathological specimens were shown:

Mr. R. W. Lloyd: A stricture of the sigmoid flexure.

Dr. Gould May: A dog's heart containing filaria from Fiji.

Dr. Maitland Thompson read the notes of a successful case

of craniotomy. Patient a primipara, æt. 26, only four feet ten inches in height, had been in labour forty-eight hours, os partly dilated and membranes ruptured; rachitic pelvis, conjugate diameter $2\frac{3}{4}$ in., transverse 4 in.; forceps were of no avail; perforation was performed, and the skull bones entirely removed, evisceration and dismemberment subsequently were necessary, the whole operation taking four hours. The case did extremely well, the patient getting up on the 20th day.

A CASE OF TUBAL GESTATION SUCCESSFULLY TREATED BY ABDOMINAL SECTION.

Dr. Lewers: The patient suffered for a short time with vaginal discharge and iliac pains. On April 1st she also had sickness and more pain, the vagina and cervix were bluish, and the breasts full. There was fulness to the right side of the uterus, which was enlarged.

On April 10th she had severe pains and vomiting. The uterus was examined and found empty. Abdominal section was performed on April 22nd. Blood clots of various ages and a three months' foetus were lying among the intestines; the right tube was perforated anteriorly, and there was also a second rupture posteriorly. The tube was removed, toilet of the peritoneum performed, iodine water, tr. iodi \mathfrak{z} j. to the quart, being used. One week later stitches removed and pulse rose to 140, temp. 102° , with swelling of salivary glands; a few days later there was a discharge from the wound, which healed again shortly. There was no distinct history of amenorrhœa. Dr. Lewers advocated previous exploration of uterus where possible, and was of opinion that the loss of blood was spread over several days.

FOUR CASES OF ECTOPIC GESTATION.

Dr. Schacht: Two under himself and two under **Dr. Travers.**
No. 1.—Seventeen days before admission the patient had pain in abdomen and faintness, followed by two similar attacks. On admission tumour was felt in right lower abdomen, mass occupied right fornix and Douglas' pouch; abdominal section performed; a two and a half months' foetus and tube (right) removed. No. 2.—Six weeks before admission patient was seized with abdominal pain and vomiting. Four weeks later a brown vaginal discharge commenced, which persisted until

admission. Right lower abdomen tender, tumour to the right of uterus. Abdominal section; right tube distended, which was removed, as was also the left on account of hæmorrhage from a point previously adherent to the right tube. The left tube was the seat of an unruptured tubal pregnancy. No. 3.—First symptoms seven days prior to admission, pain during last five days. The left appendage was the seat of the trouble in this case. The symptoms were very marked, and the operation was, as in the two previous cases, successful. No. 4.—This was thought to be one of pyo-salpinx, but eventually proved to be a tubal gestation, rupture taking place in the seventh week. Abdominal section was successful here also. There were two symptoms common to all, hæmorrhage irrespective of the period and irregular pain; in two a pulsating vessel was distinctly felt at the lower part of the mass per vaginam.

Dr. Maitland Thompson recorded a case of a foetus weighing $4\frac{1}{2}$ lbs. being removed by the late Dr. Mathews Duncan from a case of his.

Dr. Travers spoke warmly in favour of abdominal section even in apparently almost hopeless cases where there was fair reason to suspect ectopic gestation.

Dr. Lewers advocated exploration of uterus in these cases.

Dr. Schacht considered this unnecessary, as enlargement of the uterus was by no means always present.

Meeting held Friday, February 2. Dr. Travers, Vice-President, in the chair.

The following specimens were shown :

Dr. Clemow: Perforated gastric ulcer.

Mr. J. R. Lunn:

I. Perforation of Sigmoid Flexure.—The specimen was removed from a man, æt. 72, who died soon after admission into St. Marylebone Infirmary, January 2, 1894. At the post-mortem the abdomen was distended with flatus, and fæces were found in the abdominal cavity. About nine inches from the anus was found a large perforation into a gangrenous portion of the gut, and its interior was com-

pletely blocked by hard fæces; the anus was surrounded by an ulcerating malignant growth, which had, however, not produced obstruction. The other viscera were not examined.

II. *Perforation of Vermiform Appendix*.—The specimen was removed from a boy, æt. $9\frac{1}{2}$, who was admitted into St. Marylebone Infirmary, in a dying condition, July 17, 1893. He was taken ill four days before admission, with abdominal pains and sickness. Bowels had not been open for ten days. *Post-mortem* — Abdomen was distended, viscera normal; the intestines were moderately distended, some recent lymph was found amongst the coils of the small intestines, and some offensive pus was found in the pelvic cavity between the left iliac fossa and abdominal walls. The appendix vermiformis was four inches long, around which was some lymph and pus. No perforation was found, but the appendix contained ten round concretions. The post-mortem showed that there had been appendicitis, followed by suppuration, which had ruptured into the pelvic cavity, causing death, which was evidently accelerated by the boy's removal in the cab to the infirmary.

III. *Perforation of Stomach by Primary Cancer of Pancreas*.—The specimen was removed from a man, æt. 35, January 5, 1894, who had died suddenly of internal hæmorrhage. During life he had no physical signs. At the post-mortem all the viscera were anæmic and bloodless, except the stomach and intestines, which were full of clotted blood. On lifting up the liver, it was found adherent to the stomach; the pancreas was also adherent to the stomach, and had ulcerated through into the stomach cavity; this ulceration had eaten into some large blood-vessel, causing the internal hæmorrhage. The œsophagus was healthy and not obstructed. The pancreas was adherent to the surrounding structures, and was replaced apparently by a malignant growth. No secondary deposits were found in the body.

Mr. S. Paget exhibited a specimen of "Sarcoma of Femur."

Mr. Alban Doran read a paper on

THE FEEDING OF PATIENTS AFTER ABDOMINAL SECTION.

The author remarked that the importance of care in after-treatment was universally recognised, and in this diet played the chief part. The surgeon had to consider how

shock might best be counteracted by dietetic means ; how much the stomach could bear ; and how far the peritoneum and intestines could be left undisturbed. In old and feeble patients, and in any subject after long and severe operations, the starving system was dangerous, nor was food well tolerated by the mouth. Beef-tea enemata were excellent in such cases. These nutrient enemata fed the patient, counteracting the dangers of shock. They allowed the stomach to rest, saving that organ, at the same time, from the dangerous irritability to which starvation made it subject. Barley-water was the best food to give by the mouth after twenty-four hours. Meat-broths were not advisable before the bowels were opened ; they tended to make the urine concentrated. Exclusive milk-diet was bad, but a certain amount of milk was beneficial after the second or third day. The bowels were best opened by drugs when there were signs of gastro-intestinal irritation ; by enemata when the patient was doing well and it was simply a question of removing accumulated fæces. After a fair action of the bowels, fish, and then fowl, and then meat, might safely be given. Whenever sickness or flatulence returned or came on some days after abdominal section, it was best to stop feeding by the mouth and to rely on beef-tea enemata. The dangers of flatulent distension were very great, whether the flatulence were primary or secondary, and feeding by the mouth increased those dangers.

Dr. Travers said the subject raised questions of considerable interest. He desired especially to say how much reliance he placed on turpentine in cases of flatulence.

Mr. Jessett preferred peptonized foods for rectal feeding, with alternation of fluids and suppositories ; he considered flatulence chiefly due to paralysis of the bowel from handling.

Dr. Macnaughton Jones also had a high opinion of the value of turpentine in flatulence.

Mr. Bidwell thought solids might be given early ; fish after the fourth day.

Mr. Cheatle read a paper on "Complications in Certain Diseases of the Middle Ear."

Meeting held Friday, March 2. Dr. Donald Hood,
President, in the chair.

CLINICAL EVENING.

CASE OF HÆMOPHILIA.

Dr. Neville Wood showed a male child, æt. 14 months, who suffered with his first attack at the age of three days in the form of severe epistaxis; he had twice had melæna, and the subcutaneous hæmorrhages had been as large as a tangerine orange; there had also been frequent intra-muscular hæmorrhages. No certain articular hæmorrhages had been seen. The cause was probably slight traumatism in a subject predisposed to the hæmorrhagic diathesis. Of his progenitors the father only suffered from hæmorrhage.

Mr. Stephen Paget showed a case of

MYOSITIS OSSIFICANS, WITH PECULIAR CONGENITAL DEFORMITY OF THE TOES FREQUENTLY NOTED IN THESE CASES.

Alfred P., æt. 7½. The disease had begun on the left side of the back of the neck, three years ago. There were now numerous irregular masses and long nodular tracts of bone in both latissimi, in the lumbar regions, down the spine, and around the scapulæ. In both pectoral muscles were irregular bridges of bone; the disease in the left pectoral was continuous with a long narrow outgrowth of bone down the biceps toward the elbow-joint. The chest was rigid, and hardly moved in respiration. There was well-marked shortening and inversion of both great toes, so that they lay beneath and behind the second toes. This had been noted soon after birth. There was no deformity of the thumbs. There was no sign of backward intellect.

The boy's father did not suffer from gout or rheumatism; but his paternal grandfather and grandmother had both had rheumatic fever twice. His mother did not suffer from rheumatism, but her mother had suffered from rheumatic fever. One of her sisters had died of cancer of the breast; another, at 38, of "consumption of the bowels." He was the eldest of three children. He showed no signs of inherited syphilis, and was healthy in infancy. No swelling or pain had been noted previous to each fresh extension of ossification; but his

mother believed that on more than one occasion a lump had come and then gone away again.

No treatment had proved of any advantage.

Mr. Keetley thought that this was a specific disease, secondary to some inflammatory action.

Dr. Clippingdale considered that the growths were likely to be epiphyseal in origin.

Dr. Clemow advocated the empirical use of thyroid extract.

CASE OF ALVEOLAR CYST.

Mr. Bidwell said that this arose in connection with the stump of an upper bicuspid. It was the size of a small walnut, and had existed seven months. Excision was advised.

Dr. Bennett had had a similar case, but the dentist who performed extraction had taken the case in hand.

TWO CASES OF PSORIASIS SUCCESSFULLY TREATED WITH THYROID EXTRACT.

Dr. Morgan Dockrell exhibited these:—The first, a child, æt. 12, was cured in four weeks; the treatment was half a tabloid three times daily at the first, later increased to one tabloid three times daily. The other case was almost cured, the treatment having lasted six months. There was no local treatment in either. Small doses answer best; those cases accompanied by debility react best to the drug, which should be continued as an article of diet afterwards.

Dr. Abraham had treated 48 cases, of which 18 had improved, but of these external applications were used in 13. He had now abandoned the drug for this disease.

Dr. Gardner quoted a case much improved by it.

Mr. Bidwell looked upon the "cure" of these cases as being probably the seasonal improvement often noted in the spring.

CASE OF MYXŒDEMA TREATED BY THYROID EXTRACT.

Mr. Steer said the duration of treatment of this case was ten weeks, and consisted at first of half a thyroid daily, but in one week the patient had lost 6 lb. in weight, so the dose was reduced to half a lobe every other day. He is now quite well.

Dr. Gardner exhibited a series of photographs of a case of

myxœdema which was treated by thyroid juice ; the tablets were used, and the total treatment extended over about six months on account of the intolerance shown to the drug.

HÆMOPTYSIS IN A CASE OF MITRAL STENOSIS.

Dr. Chapman showed this patient, a postman, who had suffered from rheumatic fever seven years ago. Breathing became difficult two years ago. He had well-marked mitral stenosis, together with hæmoptysis after exertion. No phthisis. He had improved under strophanthus and iron.

CASE OF LUPUS.

Dr. Abraham showed this case, which he said was now relapsing after having been considered as cured by Koch's tuberculin three years ago. The same member also exhibited a girl who had been shown as a case of complete alopecia areata at the December meeting of the Society ; the child now presented quite a good young crop of hair ; she had been treated with germicide ointments.

Meeting held April 6th, Dr. Donald Hood, President, in the chair.

Mr. C. Mallack Bluett showed a foreign body, a circular disc about $1\frac{1}{4}$ inches across, which had been swallowed by a child, and passed per anum.

Mr. C. M. Yearsley : Fibroma of ovary.

Dr. H. Wilson : A case showing enlargement above the zygomata.

Mr. L. A. Bidwell read a paper on

AMPUTATION OF THE BREAST FOR CANCER.

In the following remarks I wish to confine myself entirely within practical lines, and do not intend to refer to any of the pathological problems connected with this subject, except in so far as they influence the kind of operation to be done.

There are two points to be considered when determining the success of any operative procedure for cancer : the first is the immediate mortality of the operation, and the second is the prospect of an ultimate cure.

With regard to the mortality of the operation of amputation of the breast, even in the pre-antiseptic days, there were not many deaths ; but with the introduction of imperfect antiseptic measures a more severe operation began to be practised, which caused a rather higher mortality, so that most statistics are misleading. In fact, even Lister lost 8 per cent. of his cases, while in Billroth's hands as many as 23 per cent. died. However, with more simple antiseptic measures, and especially the absence of the spray, and avoidance of any undue exposure of the chest, the mortality now is extremely low. For my own part, during the last three years, I have not known of a death due to the operation, and this among some sixty-three operations occurring both in my own practice and in that of other surgeons whom I have assisted. Last year, too, Dr. Dennis,* of New York, published a series of seventy-one consecutive cases of thorough breast operations for cancer with only one death, and that one occurred in a patient suffering from hæmophilia.

With regard to the second point, it must be admitted that all our procedures at present show unsatisfactory results. It has usually been considered that, if a patient remains free from recurrence for three years after the primary operation, she may be counted as cured, and the number of cures after operation are estimated in this way ; but, unfortunately, the rule cannot be considered as absolute. I have myself seen one case where a recurrence occurred in the axilla five years after the first operation. According to Sir James Paget, the average duration of life of patients suffering from mammary cancer is two years, while after operation the average duration became two and one-twelfth years. This gain, which is not encouraging, of course refers to incomplete operations, and it is reassuring to find that some of the modern statistics show that a considerable number of patients now pass the "three-year limit" without recurrence. Thus, Kuster reported that in 25 per cent. of his cases there was no recurrence within this time, and Dennis is able to raise the percentage of "cures" to 30.

The great improvements in the ultimate result of this operation must be attributed to the increased thoroughness and care in its performance. That the whole of the breast ought to be removed in every case is now admitted by the greater number of surgeons, although Mr. Butlin, in his "Operative Treatment of Malignant Disease," unfortunately

* "Trans. Amer. Surg. Ass.," vol. ix., p. 219.

supports the idea that it is only necessary to remove the tissues within a certain distance of the growth. I am sure there is a great risk that recurrence will take place in the gland tissue which has been left, and in the only three cases in which incomplete removal of the breast has been practised under my observation recurrence has occurred in the remaining gland-tissue.

Another point to which too much importance cannot be attached is the removal of a sufficient quantity of skin over the breast. It is not enough to remove the skin which is adherent to, or which "dimples" over the tumour, but, practically, the skin over the whole breast should be included in the incisions. It formerly was a rule that as little skin as possible should be removed, so as to ensure the coaptation of the edges of the wound after the operation ; but now the incisions should be quite regardless of this point, as any separation between the edges can readily be filled in with Thiersch's grafts, as suggested by Mr. Cheyne,* and this, too, without increasing the duration of healing. The reason for an apparently reckless removal of skin is to be found in the fact, pointed out by Professor Heidenham, that breast-tissue extends into the suspensory ligaments of the breast ; these ligaments are connected with the skin close to the margin of the breast, and would not be removed if only a little skin round the nipple were to be excised. There might not be so much danger in leaving these small outlying portions of breast-tissue, but for the evidence that Dr. Stiles, of Edinburgh, has brought forward to show that the cancerous infection takes place entirely by the lymphatic channels, which are extremely abundant and freely interlaced in every part of the breast-tissue, and so one could not be sure that these little pieces of glandular tissue were not already infected.

One must also urge the importance of removing, not only every actually enlarged gland, but also of absolutely clearing out the axilla, in every case of schirrus of the breast. To this rule there should be no exception, even when the growth is situated on the extreme inner edge of the breast. In one of my cases, where the growth was in this position, almost disconnected from the breast, a microscopic examination of the axillary glands showed that these were infected with cancer. Kuster, too, has examined microscopically the lymphatic glands from 117 consecutive cases, some of which were not

* *Lancet*, 1891.

obviously enlarged. He found evidence of cancer in all but two specimens.

Furthermore, it has been stated that in 90 per cent. of cases where general infection has taken place this has come about through the axillary glands; we also find that 50 per cent. of the metastatic deposits occur in the lung or pleura of the same side as the growth, and the apex of the lung is most often attacked, probably infected by direct continuity from the axillary glands.

With regard to the incision to be made, I think that no definite rule should be made; it is better to suit the incision to the case. The old standard transverse incision is good in certain cases, especially when the growth is situated at the extreme outer edge of the breast. For tumours situated at the upper edge or middle of the gland I prefer two vertical incisions, which enable one to remove nearly all the skin over the breast, and to bring the edges together afterwards; with the vertical incision a cross-cut into the axilla is also necessary. For tumours situated at the lower margin of the breast a diagonal incision from the growth to the axilla answers well.

It has long been recommended that the fascia over the pectoralis major should be removed with the breast, both because the posterior suspensory ligaments join it, and also because it has been supposed to act as a barrier against the invasion of the growth. But this is not the case; the pectoral muscle itself often is, or later becomes, involved by the growth. I have seen three cases of recurrent scirrhus where the recurrence was situated entirely in the pectoral muscle; last summer, too, I operated on a patient with a scirrhus of the upper margin of the breast where nearly the whole thickness of the muscle was infiltrated, and so had to be removed.

In consequence of the occurrence of secondary deposits in the pectoral muscle, Dr. Halsted,* of the John Hopkins Hospital, has suggested that in every case of amputation of the breast for scirrhus the whole of the pectoral portion of the pectoralis major should be excised. When this has been done, the division of the pectoralis minor gives a most complete exposure of the axilla, and enables the surgeon to readily remove every gland, even those between the first rib and clavicle. Last year Mr. W. A. Lane† urged a similar opera-

* "John Hopkins' Hosp. Reports," vol. ii., p. 277.

† "Trans. Clin. Soc. Lond.," vol. xxvi., p. 85.

tion in any case where the growth extended close to the pectoral muscle.

Halsted's operation seems to me to be rather too severe for every case, and I have only been obliged to perform it once, when the result was very satisfactory, and even the impairment in movement of the arm was very slight. It remains to be seen whether a recurrence will be postponed for a longer time after the operation ; Halsted himself has not tried it for a long enough time to give statistics.

I have already mentioned that the axilla should be thoroughly cleaned out in every case of cancer, whether the glands are enlarged or not ; two cases have come under my notice where the glands were not removed, as no obvious enlargement was felt ; a recurrence within a year had to be removed from the axilla in each case. In nearly all the other primary operations for cancer to which I have referred the axillary glands have been removed, irrespective of any enlargement, and in every one of my own cases I have scrupulously cleaned out the axilla.

If Halsted's method has been employed the clearance of the axilla is very easy ; but if this method be thought too severe a proceeding, a most complete view of the axilla can be obtained by dividing the pectoral portion of the pectoralis major. The cut ends of the muscle are reunited with silk sutures at the close of the operation. In the cases where I have done this, I have not found any loss of movement in the arm. In clearing out the axilla I always proceed to dissect down to the first part of the axillary vein, which is then cleaned from below upwards to the apex of the axilla ; when the triangular mass of fat-containing glands has been separated from the vein, it can be removed quickly without fear of doing damage to important vessels or nerves.

In those cases where the glands are adherent to the axillary vein, it is better to tie and remove a portion of the axillary vein than to risk leaving any diseased gland-tissue behind. I found this necessary this summer in the case of a lady on whom I operated for a scirrhus at the outer edge of her breast, accompanied by a huge mass of glands in the axilla ; these glands were intimately adherent to the axillary vein, a portion of which, about $1\frac{1}{2}$ inches long, was excised, and the remainder of the separation of the contents of the axilla was easily effected. The patient had absolutely no trouble from the division of the axillary vein ; there was neither swelling of hand nor pain ; she also quickly regained the use of her hand

and arm. I saw her six months after the operation, and found that the axilla was quite free.

A large artery and vein, the long thoracic, usually run through the midst of the glands. I have seen much time wasted in attempting to remove the glands without injuring the vessel. I think that the best plan is to clamp and divide it at once. The external mammary artery requires similar treatment. The axillary fat is supposed to be supplied by a small alar thoracic artery only, but in cases of cancer the bloodvessels are much more numerous ; in high dissections of the axilla it is not uncommon to divide the external anterior thoracic artery, which sometimes is rather troublesome to secure.

With regard to the axillary glands, I would point out that in some cases the enlargement affects also the glands between the scapula and thorax ; these, therefore, must be carefully examined for the least sign of enlargement, and, if necessary, removed ; a couple of glands, too, are situated between the two pectoral muscles, which easily escape detection, but should always be removed.

When the bleeding parts have all been secured by ligatures and the wound washed out with some antiseptic solution, the edges are united as far as possible by silk or silkworm gut sutures. When too much skin has been removed to allow of complete closure of the wound, as much as possible should be united, the space between the edges being covered with Thiersch's grafts ; in neither case is it necessary to use a drainage tube. The wound is covered with a piece of gauze protective tissue, and several layers of double cyanide gauze ; over this is placed a specially-shaped jacket of wood-wool tissue with a notch at the axilla, and a strip to be wound round the shoulder. A butter muslin bandage keeps the whole in position, and the arm is supported in a sling. In bandaging some pressure should be employed, so as to prevent any accumulation of blood under the flaps.

The wound is not dressed till the eighth day, when the incision is found to be healed, and all stitches are removed. The patient is usually allowed to get up on the fifth or sixth day, and in many of the cases has returned home before the end of a fortnight.

One word as regards the antiseptics employed, for healing without suppuration, in hospital practice at least, is only to be obtained by using antiseptic precautions. On the night before the operation the skin over the breast and axilla is

washed with soap and water and turpentine. The surface is then "packed" with gauze soaked in 1 in 20 carbolic acid. At the operation it is again scrubbed with soap and a flesh-brush, and then washed with ether to remove the contents of the sebaceous follicles; finally, some 1 in 1,000 perchloride of mercury solution is run over the part. The other side of the chest, and the bed-clothing, etc., are all covered with macintosh, and towels either sterilized or wrung out in 1 in 40 carbolic solution. Care is taken not to expose any part of the body unnecessarily, and to keep the patient warm. The instruments are preferably boiled for five minutes in a solution of soda (one drachm to a pint), and then transferred to carbolic acid solution, 1 in 40. No irrigation is employed during the operation, but before the wound is closed it is thoroughly sponged out with 1 in 2,000 solution of corrosive sublimate and dried; during the dissection of the axilla the main wound is covered with a piece of gauze soaked in mercuric solution.

I use silk ligatures, which have been sterilized by boiling for half an hour in a 1 in 1,000 solution of corrosive sublimate; for small bleeding points the smallest size, No. 00, is best. Generally, I ligature every small vessel which bleeds, and I have never found any trouble result from the presence of fifteen to twenty ligatures in the wound.

At this point I would like to draw your attention to a ready method of determining, before the wound is closed, whether all the glandular tissues have been removed. It was recommended by Dr. Stiles, of Edinburgh, and is as follows:

The surface of the mass which has been removed is cut off, and soaked for five minutes in a 5 per cent. solution of nitric acid; it is then washed, and if any pieces of epithelial tissue be left they will appear as white and glistening points, the fibrous tissue being swollen and the fat unaltered. If any of these points be seen, some more tissue must be removed at a corresponding place in the wound. This will not delay the operation, as it can be done by an assistant while the axilla is being cleared out.

With regard to cases suitable for operation, I think that some change in the recognised rules ought to be made. In the last edition of "*Erichsen's Surgery*"* we find the following classes of cases described as unsuitable for operation:

* "*Erichsen's Surgery*," 1888, vol. ii., p. 779.

“A. Strongly-marked constitutional cachexy.

“B. Disease in both breasts.

“C. Secondary deposits in internal organs.

“D. Much enlargement of glands under, and especially above, the clavicle.

“E. Œdema of hand and arm from pressure on the axillary vein.

“F. Adhesions of the tumour to the ribs or intercostal muscles.

“G. Hard, brawny, and infiltrated skin of reddish-brown colour, having a hard, leathery feel, or a greasy, glazed appearance.

“H. Rapid growth of the tumour in a patient with strong hereditary taint.

“I. An extensively ulcerated and fungating tumour with marked constitutional cachexy.”

It is my opinion that most antiseptic surgeons will operate on nearly all these classes of cases; in fact, out of the nine conditions called unfit for operation, I should refuse to operate in two only, namely, the strongly-marked constitutional cachexy, and, secondly, the presence of secondary deposits in internal organs.

Cancer of both breasts is certainly not unsuitable for operation; both breasts are usually removed at the same time. A considerable number of cases have been shown at the societies after the operation, and Dennis, of New York, mentions a case which was free from recurrence three years later.

In cases of much enlargement of the glands under, and even above, the clavicle, I should still be disposed to operate, but, of course, I should feel bound to do a most radical operation. With regard to the glands above the clavicle, it is worthy of note that they increase in size usually at a very slow rate, and therefore do not give very much trouble; also, they are difficult to remove, as I found in the case of a lady lately under my care, whose primary growth had been removed eighteen months before, and who had a recurrence in the axillary and cervical glands. I removed the recurrence from the axilla, which consisted of the glands between the scapula and thorax, but on attempting to remove those above the clavicle I found I could not do so without opening the pleura, and gave up the attempt. These have not increased in size at all since the operation.

Œdema of the hand and arm from pressure on the

axillary vein need not deter one from operating. Although in such a case one would probably find that the glands were adherent to the axillary vein, still, it is quite harmless to remove a portion of the vein, as I have pointed out above.

When the tumour is adherent to the intercostal muscles and ribs, the operation, of course, to be satisfactory, must be rather severe, but still I think that it is quite justifiable, although one has to remove portions of some of the ribs and intercostal muscles; the pleura will probably escape injury. In one of Dennis's cases, portions of as many as three ribs were removed at the operation, the patient making a good recovery and remaining free from recurrence a year later.

Infiltration of the skin no longer puts operation out of the question, since after very large amounts have been removed the surface can be covered in with Thiersch's grafts. This condition, therefore, calls for a free operation.

Few surgeons would hesitate to relieve a patient of a rapidly growing tumour, although there was a strong family history of cancer; but such conditions should make one remove the tissues very freely.

There is, however, a class of case where an operation has sometimes been credited with accelerating the course of the disease. I refer to cases of atrophying scirrhus, which perhaps may have existed two or more years before operation, but after amputation have rapidly recurred and proved fatal. It is probable in such cases that, as the tumour was very small, the whole breast-tissue was not removed, but in such long-standing cases the cancer-cells have probably spread a considerable way along the lymphatic channels, so a free operation is necessary, which, probably, would not be followed by rapid recurrence. But on this point I should be very glad to have the opinion of practitioners who have watched such cases to the end, both without and after operation.

Lastly, there is one point above all others which seems to influence the freedom of recurrence after removal of the breast for cancer, and this is the previous duration of the disease. Thus, in every one of the 30 per cent. of "cures" got by Dennis, the disease had existed less than six months before the operation. It is still a question whether we ought to look upon a recurrence as a fresh cancerous infection, or as an evidence that all the cancer-cells have not been removed. For my own part, I strongly believe in the latter theory, chiefly on account of the better results which have followed

when a more radical operation is done, as well as on account of the evidence of recent pathological work.

In the above remarks I fear I may appear to have given my own opinions too freely, but I hope that the fact will induce some of the members of the society who have had much experience in the subject to give us the benefit of their work also.

In the discussion which followed,

Mr. Jessett agreed with the paper in its entirety, except as to incision, liking transverse incisions in all cases.

Mr. Keetley complimented the author, mentioning his predilection for the rectangular incision in extensive operations likely to lead to much cicatricial contraction.

Mr. Bowreman Jessett read a paper on

THE TREATMENT OF ADVANCED CASES OF CANCER OF THE UTERUS.

In the compass of this paper I wish it to be understood that I intend to confine my remarks to the treatment of those forms of cancer of the uterus that, on account of the extent of the disease, are totally unsuitable for any form of operative interference, by which I mean vaginal hysterectomy or supra-vaginal amputation of the cervix.

The treatment of these advanced cases of the disease is a subject which has occupied the attention of both physicians and surgeons from time immemorial, and although many forms of treatment have been suggested, no permanent benefit has been obtained, and the poor suffering women who are the victims of this terrible disease have been allowed to perish unrelieved.

Cancer of the uterus, and I use the term cancer here in its broadest sense, including all forms of malignant disease of the organ, has occupied my attention now for some years, and I have given every form of treatment that has been suggested by different surgeons my earnest attention, and with but few exceptions have tried them all, and have been doomed to disappointment.

I have examined the uteri of women who have died in the hospital with a view of ascertaining the cause of death in these cases, and found that a large number died from uræmic poisoning caused by the ureters being obstructed by, and involved in, the disease; others died from secondary growths; and some died apparently from septic mischief and

exhaustion. I was much struck, however, by the limited extent of the disease in the body of the uterus. In many cases in which clinically it was supposed the whole organ was infiltrated it was found that the disease was limited to the external os and neck of the uterus, but that it had extended laterally into the cellular tissue around the neck implicating the ureters, or had extended to the vaginal wall, in many advanced cases invading the bladder in front or the rectum behind.

I therefore came to the conclusion that for practical purposes we might divide these diseases into three divisions.

1. Those in which the disease was limited to the uterus, this organ being movable and readily drawn down to the vulva.

2nd. Those cases in which the disease had extended beyond the neck of the uterus into the surrounding cellular tissue, thus more or less fixing the uterus in this situation and perhaps the roof of the vagina being slightly involved.

3rd. Those cases in which the disease extended beyond the above limits, invading the vagina and possibly the bladder or rectum, or indeed both these organs.

It is the treatment of the two latter forms of the disease to which I wish to allude to-night, and it will be well to dispose of those cases included in the third division first.

When the disease has extended to the vaginal walls, implicating the bladder and rectum, I fear nothing but purely palliative measures can be adopted. Our aim must be to make these poor women as comfortable as possible by relieving their pain and keeping the parts as clean and sweet as we can. To accomplish the first object there is nothing which answers so well as morphia and belladonna suppositories introduced several times a day if necessary. I have found relief given in many of these cases by, in the first place, syringing the vagina thoroughly well out with a solution of iodine and water, and here let me recommend this being done through a speculum. I have specula of different lengths, so that if the vagina is much involved I can introduce a short one, such as the one I now pass round, for in all these cases I think it is more important to get as good a view as possible of the diseased parts. Having syringed the parts as thoroughly as possible, I proceed with dry tampons of cotton-wool to wipe the parts well, removing as much as possible of the sloughy *débris* which is sure to be present, and finally I apply a solution of chromic acid (3ij to ʒj) to all the diseased

surfaces, being careful not to allow this solution to run on to the healthy tissues. These are protected by applying a saturated solution of carbonate of soda. Finally a long strip of gauze is introduced and a morphia suppository placed into the rectum.

The vagina is kept syringed out with some antiseptic solution some three times a day. In a few days a quantity of sloughy material will come away, and the discharge be very much less offensive, and the pain will be relieved in every case in a most marked degree. The patient improves in general health, and the appetite returns. For after-treatment I adopt the plan of inserting a small ball of gauze filled with iodoform or iodol, and a strip of iodoform gauze attached to it. This has the effect of keeping the parts wonderfully clean. With respect to medicinal treatment, I think our great aim must be directed to giving tonics, keeping the bowels regularly opened, and improving the general tone of the patient as much as possible, also administering the tabloids of Chian turpentine and ichthyol.

In this advanced stage, then, we can never hope to eradicate the disease, but we can, I am sure, prolong life and relieve suffering.

In those cases included under the second division, however, there is a much brighter outlook, and it is in these cases that we can hope not only to give relief, but to remove the diseased parts almost as surely and as effectually as we do in those cases which are suitable for complete or partial extirpation.

It must be borne in mind that the post-mortem examination of a number of cases showed that the disease was limited to the cervix and os. In other cases the body was implicated, but very rarely to such an extent as the cervix, thus pointing to the supposition that the disease usually commenced in the cervical canal and then extended outwards to the cellular tissue beyond. It must further be borne in mind that only in some of the very advanced cases did the patient suffer from secondary growths, although it is true that there were quite a number who had their lumbar and sacral glands infiltrated with the disease, but in many of these the glands did not appear as if they had long been affected. We may, therefore, I think, in this class of disease look upon it as a purely local affection, and we may hope if we can remove the growth that our patients may recover, and possibly be radically cured.

The plan that commended itself most to my mind was

that practised by Dr. Marion Sims; the thorough clearing out of the advanced disease, however, appeared to me to be of paramount importance. The curettes which were adopted by this surgeon and by others did not commend themselves to me; in fact, I had seen disaster follow their use. I have seen on more than one occasion the curette passed completely through the uterine wall into the peritoneal cavity; moreover, after the uterus has been apparently thoroughly curetted, on examining the surface it has been rough and uneven, with ridges here and there; in fact, these curettes were in my opinion ill-adapted to the purpose. I next turned my attention to Bell's dredgers, but found these did not fulfil all I wished, as they were too pliable, and their calibre was too small. The idea then occurred to me, if I could have an instrument constructed somewhat after the principle of Bell's dredger, in which I could increase in size the cutting blades by means of a screw in the handle, and furnished with watch-spring knives so shaped as to enable me to scrape out the contents of the uterus by simple rotation, I should have made a considerable advance, and should be able to accomplish all I required. Such an instrument has been made for me by Messrs. Maw, Son, and Thompson, and, as you will see, is worked by means of a screw at the end of the handle. By means of this screw the blades, which when first introduced lie flat on the central rod, are made gradually to expand until they represent an area of about one and a half inches in diameter. Here, then, I was furnished with an instrument by means of which I was enabled to remove the whole contents of the uterus with comparative ease, and as the blades are not too sharp, no mischief can be done with them, and very little bleeding follows its use. By using this instrument a perfectly smooth even surface is left, and this is of the greatest importance, as if the surface is uneven the application of the caustic is rendered uncertain and unequal, as in those parts which are elevated it would naturally penetrate very much less deeply than in the depressions.

The next question which arose was the form of caustic, and the best method of applying it, and here I followed in the steps of Dr. Marion Sims in using absorbent wool soaked in a solution of chloride of zinc. There is, however, a great difficulty in getting this wool prepared strong enough, as if a saturated solution is used the wool becomes unevenly saturated, and it is knobby and hard. Mr. Stevens, chemist, has taken a great deal of trouble in the preparation of this

wool, and he tells me the strongest solution he can use is chlorid. zinci ʒvj to water ʒj. After saturation the wool is carefully dried and kept in a firmly stoppered bottle ready for use. In very bad cases, however, I have been in the habit of having a paste of chloride of zinc prepared at the time of operation, and soaking the wool in the paste, and getting it as dry as possible by squeezing it out in a piece of gauze, and then packing the cavity which has been cleared out with it. Great care has to be exercised in packing to prevent the caustic from running over the healthy vaginal walls.

Method of Applying the Dredger and Caustic.—The patient, being thoroughly anæsthetized, is placed in the lithotomy position with Clover's crutch. The vagina is then thoroughly irrigated with carbolized water, a Sims' speculum being introduced. By means of stick sponges the vagina is then dried. The dredger, closed, is now passed into the diseased canal and rotated from left to right. At the same time the blades are opened by means of the screw in the handle. The dredger very shortly becomes full of broken-down diseased tissue. This is readily removed by rinsing the blades in a basin of warm carbolized water. It is then reintroduced and the blades slowly opened, the instrument being removed from time to time and rinsed until it is found that the part from whence the disease has been removed presents a perfectly smooth surface. There is usually but little bleeding, nothing more, in fact, than a general oozing. This is readily arrested by having some water as hot as possible, and by means of stick sponges applying this to the cavity; when this is found to be fairly dry the process of packing commences. Should there be much bleeding it will be advisable to check this either by touching with Paquelin's cautery, or plugging with gauze firmly, or applying perchloride of iron lint. In this case the packing with the zinc wool must be postponed until the next day, when it can readily be done in the ward.

Packing.—This is best done by having very small pieces of the wool and packing these in with uterine forceps, an assistant steadying the uterus by pressure above the pubes. It is astonishing what a quantity of wool can be packed in these cavities. When the cavity is quite firmly filled I place over the mouth a ring pessary with rubber diaphragm. The object of this is to prevent the action of the chloride of zinc at the orifice from being neutralized. The vagina is now plugged with tampons of wool soaked in a saturated solution

of carbonate of soda. I find it a good plan to introduce one tampon thoroughly soaked and allow it to remain in for a few minutes, and then remove it so as to neutralize any of the caustic which may have leaked on to the vagina wall. Three or four plugs soaked are now passed into the vagina; and here again you will find it a great convenience if you have them tied together in the form of a kite's tail, as it saves so much trouble when removing them. The patient is now returned to bed.

The next day the carbonate of soda tampons may be removed and fresh ones introduced, or they may remain in for some few days. Should there be no tenderness or rise in temperature the chloride of zinc packing need not be removed for four or five days; this is most easily extracted by means of Marion Sims' screw, which consists of a long straight steel rod with a very fine double screw, like a very small corkscrew, at the top. After the packing is removed the vagina and cavity should be well syringed out with some antiseptic solution. I prefer weak iodine and water. A piece of iodoform should be packed into the cavity. This should be removed night and morning and the part syringed on each occasion. In syringing the vagina I prefer using a full-sized Ferguson speculum, as it is much easier to syringe out any sloughs or *débris* that may be detached.

At the end of from seven to ten days the slough created by the caustic will become detached, and can readily be removed, by means of uterine forceps. The slough should always be allowed to become quite loose before being removed, or troublesome hæmorrhage may follow. A healthy, clean, granulating surface usually is left. In some cases it may be necessary to repack the cavity if the disease does not appear to be removed. Should portions of the surface appear roughened with nodules present here and there, I have caused these to be removed by injecting a few drops of solution of chromic acid, ʒj—ʒj, directly into the growth by means of a long hypodermic syringe. This has a very marked effect, causing the nodule to become hard, and this after another week or ten days detaches and can readily be removed.

With regard to medicinal treatment, I have been in the habit of giving small doses of bromide of arsenic, with, I think, in some cases, good effect. Chian turpentine also appears in some cases to tend to cleanse the parts. I have had some tabloids prepared for me by Burroughs and Wellcome, composed, some of Chian turpentine, chloride of gold

and sulphur, others of turpentine, pyoktanin, and ichthyol. These tabloids have proved most successful in these cases.

I have now treated a number of cases by the method I have described, in many with very markedly beneficial effect. Some have been treated some months ago, and are still free from any recurrence.

I have constantly been asked if this treatment by caustics is not very painful. I was myself much surprised on seeing the patients the day after operation to find they one and all expressed themselves as suffering no pain whatever, and also saying that their old pain had disappeared. In several cases what appears to be the whole uterus has come away after the free application of the caustic. Here are three specimens.

The following case illustrates well the method I have described. I have now operated upon ten cases with not one fatal result, although in two cases in which the posterior wall of the vagina was implicated a recto-vaginal fistula was established :

Emma B., æt. 37, married, eight children ; one miscarriage two years ago. Admitted into Cancer Hospital, March 18, 1893. Complains of offensive discharge, sometimes blood-stained. Also has pains in the back and shooting pains down the left leg as far as the knee. Patient first noticed the discharge a year ago ; she was then seven months pregnant. She has lost much flesh. There is no family history of cancer. Patient was ordered morphia $\frac{1}{8}$ gr. three times a day, as the pain was so severe.

Present Condition.—A large crater-like cavity in the situation of external os, easily admitting the tip of finger. The growth has extended to the vaginal walls ; uterus much less movable than normal.

April 8th, 1893.—Under ether the growth and whole of interior of the uterus was removed with the dredger. The cavity thus left was packed with chloride of zinc wool. The vagina was then plugged with tampons of wool which had been squeezed out of strong solution of carbonate of soda and water.

April 10th.—Vaginal plugs removed. Vagina well syringed out through a Fergusson speculum. Dry tampons placed in vagina. The vagina was syringed out three times a day.

April 12th.—Chloride of zinc wool removed from uterus, which was well douched out with 1-40 solution of carbolic acid.

April 13th.—Much offensive discharge and large sloughs removed.

April 18th.—No discharge or pain to speak of. Patient expresses herself as much better.

April 19th.—Uterus again plugged with chloride of zinc wool, and vagina packed with tampons squeezed out of carbonate of soda solution.

April 21st.—Chloride of zinc wool removed.

April 22nd.—Much offensive discharge and sloughs.

On May 21st, as there appeared to still be some growth remaining, the cavity was again plugged with chloride of zinc, which plugs were removed on May 23rd.

June 1st.—Patient discharged ; has no pain or discharge to speak of, feels much stronger, and expresses herself as feeling quite well.

August 3rd.—Still continues free from pain or discharge ; the parts feel quite firm.

Illustrative cases were then read.

Dr. Schacht inquired if *Mr. Jessett* knew how far the sub-peritoneal uterine tissue was removed.

Dr. Roe asked if there was any trouble in removing the plugs.

Mr. Bidwell remarked that the post-mortem on a patient after the separation of the slough would settle the query raised by *Dr. Schacht*.

Mr. Jessett replied briefly, stating that he had not lost a patient under this treatment.

Meeting held Friday, May 5th, the President, Dr. Donald Hood, F.R.C.P., in the chair.

Mr. W. H. Battle read a paper on

TWO CASES OF RUPTURE OF THE LIVER WITHOUT EXTERNAL WOUND.

The cases are examples of very severe injury, but are such complete contrasts in other respects that they illustrate two types of the ruptured liver far removed from the ordinary.

In the first the ribs were fractured, and the amount of damage done to the liver was moderate and did not call for operative interference. In the second the ribs were not fractured, but the laceration of the organ was extensive, and operation was required to try and arrest the hæmorrhage, which threatened speedy death.

On July 30, 1892, a printer, aged 34, was admitted to the Royal Free Hospital. About eight o'clock in the evening he got out of a van, and in doing so caught his foot in the traces and fell on his face; before he could get up a heavy waggon passed and wedged him between the wheel and the kerbstone. He was in a decidedly alcoholic condition and very collapsed; the pulse was hardly perceptible at the wrist. He did not complain much of pain in the abdomen. Examination of the trunk showed fracture of the tenth and eleventh ribs on the right side, and there was pain and tenderness in this region, also in the epigastrium. The temperature was only 95° . There was marked swelling about the right kidney, and a large quantity of blood was passed in the urine. After the administration of half an ounce of brandy he was very sick. He was very slow in recovering from the shock of the accident, and the temperature was only 96.4° on the morning of the 31st, and 97° on that evening; it did not reach normal until the 4th day.

The day following the accident he complained of much pain and tenderness in the abdomen, which had commenced to distend; there was dulness in the flanks, changing with position, in addition to an increased and fixed swelling in the right kidney region. The urine looked like pure blood and was scanty in quantity. Opium was given internally and hot fomentations applied externally.

On the third day, when I saw him for the first time, he was still complaining a great deal of abdominal pain, chiefly in the right side; his respiration was thoracic, and performed with some difficulty, the right side was tender to the touch, there was a large swelling in the region of the right kidney, some increase in the hepatic dulness, evidence of free fluid in the peritoneal cavity, and slight jaundice. The abdomen was also somewhat distended. Urine contained a large quantity of pure blood and was scanty in amount—24 ounces in 24 hours. The bowels were confined. These symptoms made me come to the conclusion that in addition to the ruptured kidney he had also sustained a rupture of the liver.

On August 2 (the fourth day) he developed a cough with

slight muco-purulent expectoration, and the fractured ribs caused him pain, although a bandage was kept firmly applied round the trunk. On the seventh day there was evidence of fluid in the right pleura. On the eleventh day the fluid had increased in amount, and was causing displacement of the heart to the left; there was no fever. Dr. Sainsbury, who saw the man in consultation, agreed that it was probable that there was affusion of inflammatory character. The chest was aspirated, and five ounces of blood-stained fluid drawn off. As this was of a decidedly green colour it was tested for bile with nitric acid, and gave an abundant reaction. The urine was tested at the same time, and found to be quite free from it. On the fifteenth day the dulness on the right side of the chest was less extensive, and the side was painted with tincture of iodine. On the nineteenth day the dulness extended as high as the spine of the scapula when examined posteriorly. Aspiration was again performed on the thirty-second and thirty-fifth days; on the former day a little fluid was removed; on the latter no fluid was found. The dulness gradually subsided, and the condition of the chest became normal.

The amount of blood passed during the first few days was considerable, but it diminished slowly until the quantity was small, but enough to give it a decidedly red tinge. The man was decidedly anæmic, but in other respects appeared to hold his own, there being no alarming symptom until the nineteenth morning at two o'clock, when he was suddenly taken much worse, and passed about ten ounces of almost pure blood. He seemed in much pain and became very collapsed. Half an hour later more blood was passed, and ice bags were placed over the kidney and opium given internally. At six o'clock he was still very pale and collapsed, but had lost the pain; temperature 97.4° . A mixture containing tinct. hamamelidis was commenced to be given every six hours, the amount being increased to twenty mm. every four hours at night. The urine became of a deep claret colour, and but little change was noted for a fortnight; it was then of lighter colour, which did not disappear completely until eighteen days after the recurrent hæmorrhage, and there was albumen present for another three weeks. The swelling in the region of the right kidney could be felt for six weeks after the injury, and was tender, but disappeared before he left the hospital on September 22 for a convalescent home.

There is nothing of importance to record about the tempera-

ture ; but it was as high as 100° in the evenings for a few days after the first aspiration of the chest.

I have had a letter from this patient saying that he had not felt any effects from the accident since he had left hospital. He had recently been examined by Mr. Bowring, the Senior Resident Medical Officer, who reports that he was unable to find anything wrong with the man, and that there was no sign of hydro-nephrosis.

This case was thus a complicated one ; there was not only a laceration of liver substance sufficiently large to cause hæmorrhage to an appreciable amount into the peritoneum, but associated with this there was a wound of the diaphragm permitting of the escape of bile into the pleural cavity. The diaphragm was wounded by the fractured ribs, and it is possible that the liver was wounded by the same bones, but there is no proof of this. Throughout the progress of the case the condition of the kidney caused me the most anxiety, for the continued hæmorrhage from it made me seriously consider the advisability of excising the organ ; and when the severe attack of hæmorrhage came on, the house surgeon sent for me, thinking that I should probably do so. Operation was not done because I did not consider the amount of hæmorrhage sufficient to call for it, and I hoped with the advance of contraction of clot around the kidney and the repair of the damaged organs, the orifice of the vessel or vessels would be obliterated. It is a great satisfaction to know that no hydro-nephrosis has developed since he was in the hospital. I have known such a condition follow injuries of the kidney when the symptoms were much less severe.

The second case is that of a woman aged about 50, who was admitted to the Royal Free Hospital about six o'clock in the evening, when I was leaving, and I saw her at once with the house surgeon. She had just been run over by a hansom cab in the street near. Her condition was one of great mental excitement, and she called out whenever she was touched and screamed loudly ; it was the same whether the abdomen or the arm was the part touched. Nothing could be found on examination, yet although she did not show much evidence of shock, it was thought that she might have received internal injuries, and she was admitted. About ten o'clock I was sent for to see her again, and found her suffering from the effects of hæmorrhage, with the evidence of a considerable amount of fluid in the peritoneum. There was also tenderness about the abdomen, but nothing to indicate whether the bleeding came

from an injury of the liver or spleen. There was such a large amount of fluid in the abdomen that I was inclined to look upon the latter as the probable source, although the initial shock was not so much as I expected. There was only one thing to be done, and that was, to make an attempt to find the wound from which the bleeding came and close it, if it could be found. Median section was made in the upper part of the abdomen, and a large quantity of fluid blood and clots washed out; but careful examination showed no wound of accessible parts of liver or spleen. The abdomen was drained. She died two days later, apparently from exhaustion, without recurrence of the hæmorrhage. At the post-mortem examination we found a large and deep laceration of the posterior part of the liver.

Dr. Hamer Gage has, in conjunction with Dr. Larini, collected a series of 272 cases of wounds and injuries of the liver. I will merely refer here to the ruptures of liver substance as a consequence of indirect damage, that is, to subcutaneous lacerations without any external wound; of these there were 108, with a mortality of 85·2 per cent. Internal hæmorrhage is mentioned by those who recorded the cases, in twenty, and proved fatal in eighteen (90 per cent.); whilst peritonitis was responsible for a fatal result in 14 per cent. Abscess of liver followed the injury in five cases, and proved fatal in four.

No definite rule can be laid down as to the indications for performing abdominal section in these cases, and the responsibility must rest with the surgeon in charge. Unfortunately, it is not always possible to get at the rupture; it is frequently out of reach; still, the mere opening of the abdomen and washing out of the effused blood appears to exercise good influence on the hæmorrhage. In the case recorded it did not recur, although the wound was not directly treated. Should a laceration be found, it would be well to bring the edges together with catgut sutures, or to plug the place with gauze, and wash out the abdomen.

Abdominal section and saline infusion is the line of treatment clearly indicated in such a case as that which I have recorded: one in which the chief danger to life is from hæmorrhage into the peritoneum—a hæmorrhage which is continuing and must eventually result fatally.

Dr. Macnaughton Jones read a paper on

REST, PHYSIOLOGICAL AND THERAPEUTICAL, IN THE TREATMENT OF EYE DISEASES.

Having pointed out that the object of the paper was to draw attention to the vital importance of securing physiological rest in ocular therapy—a view impressed on him by years of repeated clinical experience and observation in the treatment of eye diseases, whether from the positive side, in the effects of stimulating and irritating applications, or the negative, in the neglect of necessary restful measures—he grouped categorically the physiological facts bearing on the various reflex excitations influencing the intraocular circulation and the tension of the globe generally, and the condition of equilibration of its humours.

A scheme of the various ocular reflexes was exhibited, showing the many avenues through which reflex irritations can reach the eye. The clinical evidences of such reflex excitations were reviewed, and the practical bearings of the filtrating zone in the ciliary region in maintaining such a state of equilibration. The analogy between an inflamed testicle and the globe of the eye in the application of the three principles (Furneaux Jordan) of “rest, pressure, and counter-irritation,” was pointed out. The various clinical means of securing rest in inflammatory states of the tunics of the eye were reviewed, and the speaker exhibited a new ophthalmic ice bag which he had had recently made. The need for careful differentiation of the clinical indications for mydriatics or myotics was emphasized in the instances of atropine and eserine, and the ill effects of certain commonly-used stimulating applications in the form of drops or lotion.

Mr. Percy Dunn, Dr. Campbell Pope, and Mr. Lynch joined in the discussion of the paper.

Mr. G. C. Wilkin read a paper on

A CASE OF EPITHELIOMA OF THE EAR TREATED WITH INJECTIONS OF PYOKTANIN.

The patient, whose left pinna was very prominent, had a large swelling in front of the ear, and the skin over the mastoid was adherent and discoloured. Pyoktanin injections (1 in 500) were used, and were changed first to 1 in 300, and then to 1 in 100. The growth hardened and became more defined after the injections, and the pain was immediately relieved.

Death took place sixty-five days after the first injection, and at the post-mortem examination no epithelioma was found in the tissues in front of the pinna.

Drs. Pope and Eddowes and Mr. Eccles discussed the paper.

Clinical Meeting, held Friday, June 1st, Dr. Donald Hood, President, in the chair.

Dr. Scanes Spicer showed a case illustrating

THE RADICAL CURE OF FŒTID SUPPURATION OF THE NOSE

by free opening, curettement, and drainage of the maxillary antrum. The patient, a young man, came under treatment in July, 1890; there were polypi in the right nostril and discharge of pus from under the middle turbinated bone. The polypi were removed in November, 1890. On December 27 the antrum was opened through a tooth socket and a plate adapted. On May 27, 1892, as the foregoing treatment and antiseptics had proved of no avail, the antrum was opened in the canine fossa and freely curetted. The patient was very ill for some time, losing two stone in weight in a few weeks; leaden spigots were used, but in April, 1893, one was inadvertently pushed into the antrum. The opening into the canine fossa was then enlarged and a free aperture made into the nose in the inferior meatus. The patient regained his normal weight, and had been free from any symptoms for one year.

Mr. Lake referred to a similar procedure adopted abroad.

Mr. McAdam Eccles showed a case of

PROBABLE DEPOSIT OF URATE OF SODA IN THE SCROTUM.

The patient had suffered with repeated attacks of gout, and had tophi in the ears. The testes were normal, the disease had been present and progressive three and a half months, and the skin of the scrotum now presents ragged openings, the edges are undermined, the floor is formed by a hard and fixed yellowish white mass, quite painless. Mr. Eccles had not put him on antisypilitic treatment, though he believed this might be specific in character.

Dr. Clemow quoted a similar case in which a cure was quickly accomplished by biniodide of mercury treatment.

Messrs. Bidwell, Lloyd, and Atkinson were also of opinion that the disease was specific.

Mr. Eccles also showed two cases of subcutaneous nodules in rheumatic subjects, and cases of (1) multiple tumours of abdominal wall, (2) symmetrical warty growths of legs.

Mr. Bidwell considered the nodules to be fatty in one case, with which opinion *Messrs. Lloyd* and *Atkinson* concurred.

Mr. Bidwell showed a man, æt. 27, whom he had shown in November last with a large syphilitic nodule on the left humerus; since then he had spontaneous fracture, and the fracture was explored by free incision. No evidence of sarcoma being found, the wound was cleaned, and the future treatment, which ended in recovery, consisted of prolonged rest and the internal administration of iodide of potassium. **Mr. Bidwell** showed a girl, æt. 17, suffering from congenital syphilis. She presented patches of ulceration on both ankles and also on the chest; they much resembled scrofuloderma.

Drs. Abraham and *Lloyd* took part in the discussion.

Dr. Morgan Dockrell showed a case of rodent ulcer of twenty years' duration treated by resorcin. The patient persistently refused operation, and had improved markedly under the external use of resorcin.

Dr. Abraham said he had known of cases which had been cured by zinc ointment.

Mr. Bidwell said he was in favour of removal where possible.

Dr. Dockrell also showed a case of mycosis fungoides. The disease commenced eight years ago after probable psoriasis; it now presented well-marked erythematous scaly patches and fungating masses in the lumbar region and on the arm.

Mr. F. P. Atkinson read the notes of a case of multiple lipomata.

Dr. Abraham showed some cases of skin disease.

THE CAVENDISH LECTURE.

ON SOME POINTS IN THE TREATMENT OF TYPHOID FEVER.

BY SIR WILLIAM H. BROADBENT, BART., M.D., F.R.C.P., LOND.,

*Physician to St. Mary's Hospital and Consulting Physician to the
London Fever Hospital.*

Delivered before the Society on June 14th, 1894.

MR. PRESIDENT AND GENTLEMEN,

I shall not waste your time by any elaborate expression of thanks for the honour you have done me in appointing me your Cavendish lecturer, but simply say that I appreciate the honour very highly and at once enter upon my lecture.

Some explanation is perhaps necessary of the choice of the subject to be brought before the society. Surely, it may be said, the treatment of typhoid fever is sufficiently well understood. It has been carefully laid down by great clinical teachers, and, while new suggestions are multiplied on every hand, it may be objected either that they relate to details which afford no basis for a revision of principles, or that, on the other hand, they are of so radical, and even revolutionary, a character that time is required before a judgment can be given with regard to them. But there is no finality in medicine, no conclusion in therapeutics, in which we can for any length of time rest and be thankful, and no one who has written upon typhoid fever would claim to have said the last word upon the questions involved in its treatment. For my own part, I should desire to be understood not as speaking with authority, but simply as offering a contribution to the subject, the result of personal observation and thought. A special reason for a revision of our ideas as to the treatment of typhoid fever arises out of the more extensive and profound knowledge obtained in recent years of the part taken by specific microbes in the production of disease, and in the

determination of its course and duration. The life history of these micro-organisms has been followed out, the mode in which they influence the human system has been more or less definitely ascertained, the conditions under which their virulence is intensified or attenuated have been investigated, the processes by which their action on the organism is resisted, and their lethal influence brought to an end, have been studied. Again, while the bacteriologist has been engaged in identifying and studying the particular bacterium, or coccus, or protozoon which sets up a given disease, the chemist has been working for the discovery of germicides or bactericides which might destroy the morbid agents, and of substances which might protect the human system from their attacks; and naturally physicians have been eagerly inquiring how this knowledge may be turned to account in combating the diseases which they have to treat, and whether there may not be found in it resources which may render to medicine some such service as the researches of Sir Joseph Lister have rendered in surgery. The chemist, again, has placed at the service of the medical man products which possess the marvellous power of lowering the temperature of the body. These, at first sight, seem to be the very weapons we require with which to subdue fever. We have all looked with hope to these antiseptics and antipyretics, and it will be useful to compare notes on the methods we have employed and on the results we have obtained; and typhoid fever is a favourable field for such comparisons. But it is not simply on this account that I have taken it as the subject of this lecture. It is a disease possessing great clinical interest from the variety of features which it presents in different cases, and from the opportunities which it gives for careful observation and judicious modifications of treatment. Probably more frequently in it than in any other disease the medical man may turn the scale in favour of the patient, when the issue of life and death lies in the balance, by watchfulness, knowledge and skill, and there is no better test of clinical sagacity and capacity than the conduct of a case of typhoid fever.

Nothing need be said as to the general management of the patient; nothing too emphatic could be said as to the importance of careful nursing. Very little, again, is necessary to be said on the subject of feeding, although on this success largely depends. The popular idea is that, the disease being one characterized by weakness, the remedy is nourishment and perhaps stimulants, and that the more the sufferer can be induced to take the better. One of the first tasks of the

medical man is usually to prevent overfeeding. In the early stages of the disease any liquid offered is eagerly taken, especially if it is cold, and quantities of milk or milk and soda-water may be given altogether in excess of the powers of the digestion. Curds and other irritating products are thus formed which give rise to flatulent distension, nausea, and sometimes vomiting, and aggravate the intestinal catarrh. An average amount of food would be about two pints of milk and one of broth or beef-tea in the twenty-four hours, to be given eight or ten ounces at a time at intervals of about two and a half or three hours by day, and rather less frequently at night, so as not to interfere too much with sleep, the discretion of the nurse being exercised in this respect. But, while naming the above amount and character of nourishment as that to be aimed at, no absolute rule can be laid down as applicable to all cases. There are patients, for example, whose dislike for milk, with probably a corresponding incapacity for digesting it, is such that they cannot take it in any form, and we have to depend on broth and beef-tea, or other meat extracts or preparations, throughout. We may, again, be compelled to give the nourishment more frequently from the first, because only a small amount can be taken at a time, and as the case progresses the intervals almost always have to be shortened on this account. An absolutely indispensable guide to the feeding of the patient is regular and systematic inspection of the dejecta. This is the secret of success in the treatment of typhoid fever. The medical man ought to see every stool which is passed, or, if this is for any reason impracticable, at least one motion every day. It is only by personal examination that he can know the amount and significance of the diarrhœa—whether, for example, it is copious, or only frequent, each action being scanty, and can tell when and in what way to step in and interfere. The character of the motions, again, often reveals the cause of any special disturbance of the bowels. A particularly offensive smell and unusual colour may indicate septic processes in the intestinal contents, or it may be seen that some article of diet is playing the part of an irritant—as, for example, strong beef-tea. If undigested milk appears in the evacuations, however finely the curds may be divided, irritation of the intestinal tract is sure to follow, and probably diarrhœa. In this case measures should be at once taken to ensure the better digestion of the milk. Soda-water or lime-water may be added to it with a view to prevent premature coagulation, or it may be diluted with barley-water,

which does not permit of the formation of large solid curds. More effectual than either of these expedients is the peptonization of the milk. This unfortunately destroys its natural flavour and gives it a more or less bitter and disagreeable taste, so that patients usually dislike it, which interferes with its usefulness. When it is necessary to peptonize the milk, it should be done thoroughly, according to the method described by Sir William Roberts.

The subject of stimulants, again, will require only a very few words. Were I speaking only to this society I should need to do no more than express my general agreement with the conclusions set forth in the excellent address of your president, Dr. Donald Hood. The part which stimulants take in the treatment of typhoid fever is chiefly to carry the patient through the later stages of the disease, when the nervous system is exhausted, the circulation failing, and digestion all but suspended, or as an accessory to cold bathing. Many cases do not really require stimulants from first to last ; in no case should they be given at once as a matter of routine. The indications which tell that they will be of service, and that the time has come for their use, are frequency and low tension of the pulse and dryness of the tongue, together with nervous and muscular prostration and mental confusion. The amount given should be small at first—one and a half, two, or three ounces of brandy—and it should be subdivided and taken with or after the milk or other nourishment. As the asthenic symptoms become more pronounced the amount will be increased, but always in a guarded manner. My own observation has led me to look upon ten ounces in the twenty-four hours as almost the maximum from which good effects may be expected. Beyond that amount stimulants appear to make little impression on the symptoms, and it should be an object of solicitude not to reach the full quantity prematurely. A change of stimulants often does better than an increase in the quantity, such as the substitution of whisky, or port, or old Madeira, or Malmsey, or champagne for brandy. It is a common idea that drunkards and persons habitually consuming a good deal of alcohol require large amounts when suffering from typhoid fever. I am not at all sure that they benefit by it ; the vascular and nervous systems are so habituated to it that they make no response. Such patients are exceedingly likely to die, however freely they may be plied with stimulants, and I am disposed to believe that they would have a better chance on abstinence than on alcohol, nux

vomica or strychnine being given from the first. When stimulants are really necessary, the good effects are seen in a lowering of the pulse-rate, the volume and tone being improved ; usually also the temperature is somewhat reduced, the nervous system is steadied, and there is more restful sleep. A noteworthy point is that there is no odour of alcohol in the breath. Whenever this is persistently present, the stimulant is almost certainly doing harm instead of good. A regulated amount of brandy or other stimulant does not preclude the administration of a supplementary dose when called for by sudden faintness or failure of strength, or when the patient is exhausted by an action of the bowels.

While according to nursing and feeding and to the judicious employment of stimulants their full importance in the treatment of typhoid fever, the supervision and regulation of these do not exhaust the functions of the physician. He may very frequently influence favourably the course of the disease and contribute to the recovery of the patient by the use of drugs, and by other means outside the province of the nurse or beyond a mere attitude of expectancy, and he must at times, if he is to save life, interfere energetically. In no class of cases can it be said more forcibly that we do not treat the disease, but the patient ; in none is routine treatment less applicable. In the course of typhoid fever numerous injurious influences are in operation ; dangers arise of a very varied character, and there are diverse tendencies to death. We ought to have in our minds a clear perception of the processes which in a given case underlie the symptoms. This alone will give precision to our efforts to counteract their ill effects. With this view a classification of the morbid agencies which together constitute the disease may be of service.

Before entering upon this, however, there is one point, relating to general treatment, which may be conveniently discussed. It is, what should be done in case of sleeplessness, which is so common ? While deprecating a premature resort to sedatives of any kind in typhoid fever, as in other conditions, when cold sponging fails to soothe the patient, and when it is clear that the restlessness and want of sleep are not due to flatulent distension of the stomach or other removable cause, it is, in my judgment, better to secure sleep by drugs than to allow the patient to pass wakeful and miserable nights. The drug I prefer is opium in some form or other. Phenacetin or antipyrin will often relieve the initial headache and give sleep, and phenacetin as the least mischievous

member of the group may be given once or twice, but these substances are depressing, and, at the outset of a long and exhausting illness any deduction from the sum total of the patient's forces is to be avoided. Chloral, again, distinctly lowers the vigour of the heart's action, and relaxes the arterioles, imitating thus the effects of fever on the circulatory apparatus. Experiment, moreover, has shown that it paralyzes the phagocytes and renders them inert in the presence of bacilli, which they would otherwise attack. Chloral is therefore inadmissible, and, it may be added, is usually ineffectual. Bromidia, which may be looked upon as chloral in disguise—often ordered, I fear, in ignorance of its composition—I should emphatically condemn. Bromides are less open to objection for occasional use, but are seldom of real service. When, therefore, a remedy for sleeplessness is needed, it should, in my judgment, be sought in one or other of the preparations of opium or morphia. It has been objected that opiates derange the digestion. This has not been my experience, but they may be employed to disguise the effects of flatulence, the result of digestive derangements which ought to have been corrected.

Returning now to the various factors which enter into the disease, we can recognise three more or less distinct causes for the symptoms, each of which is attended with dangers of its own: (1) The operation of the poison; (2) the intestinal lesions; and (3) the protracted high temperature. The poison is the primary cause of the disease, and we may consider first effects traceable more or less directly to toxic influence on the system and the means by which they may be counteracted. The typhoid bacillus primarily sets up inflammation in the gland follicles of the intestine, but its activity is not confined to these structures. The bacillus is present also in the blood, and, whether in the blood or in the glands, it secretes, or produces by disintegrating the albuminoid substances in which it lives, a ptomaine which gives rise to fever, headache, prostration, and various effects on the nervous system. The febrile temperature is probably the direct result and the best measure of the activity of the bacteria which have entered the blood and been carried throughout the system. The first question to be considered is whether by any form of treatment the typhoid germs can be destroyed, or their action arrested, or their toxic influence counteracted. There has never been a time when physicians have not entertained the idea of cutting short fever. As the zymotic origin of fever gained

acceptance, efforts in this direction took more and more the form of antiseptics; and now that the typhoid bacillus can be isolated and its life-history followed, and that the effects of different agents on its vitality and virulence can be studied, it is natural that such efforts should be renewed. In endeavouring to estimate the probabilities of their success, we must bear in mind that when symptoms appear the microbe has already eluded or overcome the phagocytes, protective alexins, and other defensive agencies, and has obtained an entry into the blood and tissues, where it is actively multiplying and producing its specific ptomaine. Now, it is exceedingly improbable that any antiseptic could be introduced into the blood in sufficient proportion to destroy the bacillus, or even materially influence its activity, which would not at the same time profoundly and injuriously affect the blood corpuscles and the gland and nerve cells. We get no encouragement from bacteriological research to look forward to the destruction of the microbes when once in possession, and clinical observation still endorses the conclusion that the fever runs its course in spite of remedies of the antiseptic class. A method of arresting the multiplication and activity of the bacilli is suggested by the mode in which the termination of the attack is effected. The cessation of a fever is not brought about by exhaustion of the pabulum on which the bacillus thrives, but by the accumulation in the blood and tissues of some product of its action upon their constituents which arrests its further activity, and apparently protects the organism from future attacks of the disease, just as the alcohol produced by fermentation brings the growth of the yeast organism to an end. Possibly an anti-toxin may be obtained which, injected under the skin, may anticipate the termination due to the formation of such a substance in the system. This, which is different from the introduction of a protective alexin producing immunity from invasion by the bacillus, has not yet been done, however, in typhoid fever, though apparently diphtheria has been in some measure brought under control by such a method. But recognition of the fact that no antiseptic has yet been shown to be capable of destroying the bacteria in the blood does not carry the implication that antiseptics have no place in the treatment of typhoid fever. Ptomaines are not only produced in the blood, but in the intestinal canal, whence they are absorbed into the blood. And there are here other microbes at work besides the typhoid bacillus. The exudation from the inflamed Peyer's patches and from the intestinal

catarrh affords a pabulum for various septic agents, and their ptomaines are added to the typhoid poison proper. Apparently some of the products of intestinal sepsis are even more deadly than the primary disease. It is one thing to follow the typhoid bacillus into the blood ; it is quite another to deal with septic processes taking place in the intestinal canal, and there can be no doubt as to the benefit rendered by antiseptics employed for this purpose. A great variety of substances belonging to this class have been recommended and employed : carbolic acid, sulpho-carbolates, β -naphthol, salol, chlorine, hypochloric acid, iodine, boracic acid, and borates. I have tried most, if not all, of them with good result, but I have come to rely almost exclusively on mercurial preparations, which I have found to be of very great service when administered for certain definite purposes and in obedience to definite indications.

One of the effects of septic processes in the contents of the intestine is diarrhœa, the character of which may be recognised by the offensive and sometimes putrid smell of the evacuations, differing from that of the typhoid stools, strictly speaking. The colour is often dark, and not unfrequently the consistence is watery with brown particles or flakes in suspension, quite unlike the pea-soup typhoid stools. The abdomen at the same time is often distended with gas, and the temperature may be considerably raised by absorption of septic products. Diarrhœa caused in this way is most frequent early in the disease, and is most common in patients who have indulged in alcohol or in excess of food. It may also be due to continued consumption of solid food after the fever has set in. The treatment I have found most efficacious in diarrhœa due to sepsis of the intestinal contents is the administration of perchloride of mercury, which I have usually given in doses of one drachm of the solution with one grain of quinine every three or four hours for twenty-four or forty-eight hours. Calomel in repeated small doses of one-third of a grain every three or four hours is equally effectual ; the diarrhœa has almost always, in my experience, been checked, the abdomen subsiding and the temperature falling one or two degrees. The entire aspect of the case is usually changed. So favourable has the effect of the perchloride been that I have often been induced to continue its administration in small doses of half a drachm three times a day through a great part of the fever. A common practice in Germany is to initiate the treatment of a case of typhoid fever by two or three grains

of calomel on two successive days. Without going so far as to recommend this, I think it would prevent diarrhœa such as I have just described, and at the outset of the attack a single dose would probably be beneficial in most cases. During the first few days of the disease, when the diagnosis is still in doubt, few patients escape an aperient of some kind; it should in my judgment be a rule of practice not to let this be of an irritant kind; a couple of grains of calomel, alone or with a grain of extract of hyoscyamus, followed if necessary by a mild saline, will clear out the bowels, carrying off both fermentescible material and fermentative organisms without aggravating the catarrh or irritating the inflamed Peyer's patches, and will at the same time disinfect the intestinal tract, while colocynth or compound rhubarb pill or liquorice-powder might set up a troublesome diarrhœa. More formidable than local irritation and aggravation of the catarrh of the small intestine are the effects on the nervous system of absorbed products of bacterial action on the intestinal contents. Other bacteria besides the typhoid bacillus may effect an entry into the blood through the lesions in Peyer's patches, but it is the ptomaines formed by their activity in the alimentary canal which constitute the poisons. Sometimes with diarrhœa of the kind just described, with high temperature and tumid abdomen early in the disease, there is either wild, maniacal delirium, or great stupor and heaviness. These are cases attended with extreme danger. The good effects of the employment of the perchloride of mercury or calomel are frequently seen in the mitigation of the nervous symptoms, as well as in the alleviation of the intestinal irritation. Without fever intestinal ptomaines may give rise to headache, languor, stupor, and even coma, which disappear with the clearing out and disinfection of the alimentary canal; and in the course of typhoid fever much graver symptoms of the same kind may appear. They are entirely foreign to the normal course of the disease as usually observed, and are obviously due to some other poison than that produced by the typhoid bacillus.

I have previously related a striking example of this complication. Some years ago I was called by Dr. Ford Anderson to a young man in the second week of an illness of obscure character. A diagnosis of acute tuberculosis had been made by a physician previously consulted, but Dr. Ford Anderson considered the disease to be enteric fever, and the aspect of the patient was characteristic. The temperature, however,

was low, the pulse so small and weak as to be scarcely perceptible, and the circulation in the extremities so languid that the hands and feet were greatly swollen, cold, and livid. The sounds of the heart were scarcely audible. The intellect was clear, but the weakness and prostration were such that it was a painful effort to answer any question, and the patient remonstrated against examination and could scarcely be induced to say anything except "I am so tired." There had been nothing in the course of the attack to explain the extreme depression of the nervous and cardio-vascular systems, and it could only be attributed to the action of some poison, the most probable source of which was intestinal sepsis. The abdomen was soft and supple, and there was no tenderness in the right inguinal region; the intestinal lesions, therefore, were apparently not of a serious character, and might be disregarded in the presence of the emergency. It was resolved to clear out and disinfect the intestinal canal, and three grains of calomel were given at once, and repeated next day. The asthenia was at once relieved, and the case resolved itself into a mild form of typhoid fever, which pursued uninterruptedly a favourable course.

Extreme cases such as that just related are very rare, but instances in which there is oppression of the nervous system, which is not accounted for by the temperature and is out of proportion to the severity of the symptoms generally, are not uncommon. When this conclusion is established by careful investigation, it may be inferred that the symptoms are due to some poison, and I have many times seen stupor and muscular tremor remarkably relieved, and the entire aspect of the case changed, by one, two, or three grains of calomel. There are certain rare cases of typhoid fever characterized from a very early period of the disease by frequent vomiting of small quantities of bilious fluid. The temperature ranges low, the pulse is weak, and the abdomen almost normal in appearance and feel. Such cases usually terminate fatally in the course of the second week by asthenia. Here, again, it has appeared to me that the depressing agent was an intestinal ptomaine, and calomel has been of great service.

Coming now to the intestinal lesions, their severity and extent may usually be judged of by the degree of tenderness over the right iliac fossa and the distension of the abdomen, taken together with the amount and character of the diarrhoea. When diarrhoea is at all excessive, the first thing to be done is to ascertain whether it is excited by the food. Strong beef-

tea in some patients appears to irritate the gastro-intestinal mucous membrane, and to hurry through the whole length of the bowel. A more common food cause is undigested milk. Diarrhœa so caused has already been considered. Another cause of diarrhœa—sepsis of intestinal contents—has also been considered. When these two sources of intestinal irritation have been eliminated it is surprising how few cases remain in which there is diarrhœa of such amount as to require control. We accept three motions a day, and rather prefer to have this number unless the quantity is excessive or the patient very weak. When interference is called for, either by the frequency or the copiousness of the stools, the best remedy is a starch and opium enema; or, when the action of the bowels is frequent and irritable, but scanty, starch alone, by its soothing action, is often sufficient. I have not for years had to prescribe astringents by the mouth, and I should strongly deprecate the employment of catechu or other drugs of this class. Bismuth and opium, with or without aromatic chalk powder, or acid and opium, would be the remedies I should choose were any required. Abdominal tenderness may be relieved by a light poultice, or by opiate fomentations. In some cases there is a tendency to constipation throughout the fever. In the early stages I should not hesitate to give a small dose of calomel followed by a mild saline, which sometimes corrects the tendency, or one of two drachms of castor-oil. Should the constipation persist, a small enema may be administered every second morning. These cases are often tedious and protracted and difficult to deal with, and there is a greater liability to relapse. In the course of the fever more or less distension of the abdomen very commonly supervenes. This is partly, but not altogether, an effect of the inflammation of Peyer's patches and of the intestinal mucous membrane through paresis of the muscular coats. When accompanied by decided local tenderness and general tension, it may be looked upon as due to the intestinal lesions, and it may be treated, according to associated general conditions, by cold water compresses—*i.e.*, a single layer of thin flannel, linen, or calico kept wet with water at any temperature thought best, or made cold by particles of ice, or, as just said, by opiate fomentations or a light poultice. But the paresis of intestinal walls, which allows of general abdominal distension, is not always a direct effect of the lesions in the mucous membrane. It creeps on together with delirium, stupor, muscular tremor, and subsultus tendinum, and, like them, is evidence of failure

of nerve power, and the treatment required is the same. Occasionally there is acute tympanites, a quite sudden and extreme distension of the abdomen. It marks extreme nervous prostration, and may be accompanied by retention of urine. When it comes on early in the disease it is one of the most fatal prognostic indications, and at every period is a sign of great danger. Stimulants avail nothing against it; strychnine hypodermically may be of service, but according to my experience the remedy of greatest value is opium, which to be of any use must be given in considerable doses—half a drachm of laudanum, repeated in an hour or so, or even one drachm in extreme cases. I have known several lives saved in this way, and have never had reason to repent having given a large dose under such circumstances.

One of the most important effects of the intestinal lesion is hæmorrhage. The liability to this complication cannot be said to be proportionate to the pain, distension, and diarrhœa which have attended the attack, though it is more liable to occur when these evidences of intestinal disturbance have been present. Sir William Jenner pointed out with perfect accuracy that hæmorrhage or perforation was to be looked for when the initial headache had been unusually severe and protracted. The ulceration in such cases, even when not particularly extensive, is liable to be deep. Enlargement of the liver is another common antecedent. When it occurs early in the attack—say, at the tenth or twelfth day—it is always attended with serious danger. After the eighteenth day, while a source of anxiety when the amount of blood lost is considerable, it may usher in convalescence, the temperature, which usually falls on the occurrence of copious bleeding, sometimes not rising again. Whenever sloughs or clots are found in the stools, a careful look-out should be kept for hæmorrhage. Its occurrence may often be recognised, before blood is passed from the bowel, by pallor of the face, weakness of the pulse, and a rapid drop of the temperature, and the colon may be felt to be full and heavy in the right loin.

The treatment on which I have come to rely is the placing of a large ice-bag over the right iliac fossa, the administration of a full dose of some liquid preparation of opium, and the subcutaneous injection of ergotin. Ten or fifteen minims of turpentine may also be given every three or four hours. The object of the opium is to paralyze the bowel. The blood poured out into the intestinal canal excites peristalsis, and the

peristalsis in turn tends to prevent the formation of clot on the bleeding surface, which might seal up the vessels. It must, therefore, be arrested ; and it is because opium given by the mouth appears to effect this better than morphia hypodermically that this method of administration is preferred. Half a drachm of laudanum, or its equivalent of liquor opii, may be given at once. Opium, again, seems to have a certain sustaining power. Astringents, supposed to act directly on the bleeding vessels, are useless ; long before they have traversed the twelve or sixteen feet of bowel to reach the ulcers they will have combined chemically with its contents, and will have expended their power of coagulating blood or astringing tissues. When the medical man lives at a distance from the patient, the nurses should be provided with an ice-bag, laudanum, and hypodermic pellets of ergotin, and have instructions to employ them immediately on the occurrence of serious hæmorrhage. Great caution must be exercised in administering stimulants. The half-fainting condition affords the best opportunity for the bleeding to cease, and the longer the patient can be kept in this state with safety the greater is the chance of the arrest being final. Perforation of the bowel is almost always fatal, but I have seen at least two cases of recovery in which, from the symptoms at the time and the formation of a dense mass of thickening between the umbilicus and the right iliac fossa, I had no doubt of its occurrence. The one chance for the patient is the administration of a large dose of opium or morphia for the double purpose of minimizing the terrible shock which attends perforation, and of arresting intestinal peristalsis, and so minimizing the extravasation of the contents and affording an opportunity for adhesions. I should not hesitate to inject half a grain of morphia under the skin, and give thirty or forty minims of laudanum by the mouth.

We come now to the third great source of danger in typhoid fever—the protracted high temperature. I have already said that I have been led to look upon the proper temperature of the typhoid fever, independent of complications, as due to the ptomaine generated by the bacilli in the blood, and this poison shares with the temperature in the production of the effects on the nervous and muscular systems. Aggravation may be caused by intestinal sepsis, and by the absorption of products of inflammation from the Peyer's patches, etc. The high temperature having been long regarded as a deadly influence, it was natural that the antipyretic class of substances should

be hailed as bringing us exactly what we wanted in the treatment of typhoid fever. According to my experience, they have not only failed us in this respect, but have done positive harm. They have, undoubtedly, the effect of relieving the initial headache, but this has appeared to me to be a very delusive benefit. One of Sir William Gull's pregnant sayings was that the removal of symptoms is not the same thing as the relief of disease. The antipyretics not only knock down the temperature, but the patient also—sometimes fatally; and I have often in cases admitted into hospital diagnosed not only the disease but the remedy. My conclusions are based entirely upon observation, but it has interested me to learn that Roque and Weill have found out that antipyrin arrests the elimination of toxins by the urine without preventing their formation. Quinine has done good in large doses as against high temperature, but its benefits have often been dearly purchased at the expense of vomiting, noises in the ears, deafness, and confusion. The most efficacious means of controlling the heat of fever, however, is the application of water to the surface of the body. Tepid or cold sponging is part of the recognised duty of the nurse, and is practised night and morning even in the mildest cases. Where the temperature ranges high the sponging should be done more frequently, and it is well to time it so as to anticipate the rise which usually takes place at a certain period of the day, which will be pointed out by the chart. In such cases it will be useful to supplement the sponging by a continuous wet compress over the abdomen, frequently renewed or moistened, or kept cold by fragments of ice distributed over it. While, however, sponging, the wet compress, the ice-bag applied to the head, and similar measures are useful and grateful, they fail to exercise the desired control over the temperature when the fever is at all severe. A resource of greater power is the bath, and it must be said that wherever this has been systematically tried the mortality of typhoid fever has been considerably reduced. The diminution in the death-rate was particularly conspicuous in the hands of Brand, who systematized the bath treatment. It fell from 25 per cent. to 9 per cent. Professor Tripier, of Lyons, has had equally favourable results, and the latest statistics which have come under my notice, those of Professor Osler in the John Hopkins Hospital, are entirely confirmatory. Dr. Cayley, again, has borne emphatic testimony to the value of bathing, and my own experience while physician to the London Fever Hospital, and in the occasional

employment of the bath in consultation practice since that time, has convinced me that it saves life. The good results of the bath treatment have long been known to the profession in this country, but it has not come at all into general use. The principal reason, no doubt, is that the cold bathing is usually very distressing to the patient, that the labour involved is great, and that in the general hospitals it is difficult to make the special provision required and to supply the additional number of nurses. There has not, moreover, been the same contrast between the results with and without bathing in this country as abroad, because our mortality was not so high. Brand's system is to place the patient in water at 70° or 65° for twenty minutes every three hours so long as the temperature in the rectum rises in the intervals to 102.5° , cold water being at the same time applied to the head. The patient is dried immediately or only after an interval, according to the effect of the bath on the temperature, and according to the strength of the patient, and he is very lightly covered. On the Continent, as I have understood, the patient gets into and out of the bath himself, and no harm seems to come of this; here and in America he is lifted carefully in and out, which adds enormously to the trouble, and at the London Fever Hospital the process was often rendered less disagreeable to the patient by cooling down the bath gradually from 90° or 85° to 70° or 65° .

I will not occupy your time by describing in detail the immediate effects of the bath; the general result is a mortality of 7 per cent., as compared with an average of 15 or 20 per cent. My own conclusion was that the disease ran a somewhat protracted course and that relapses were more frequent. Professor Osler's experience appears to have been similar as regards relapses. I will not detain you by discussing the explanations given of the good results of the bath treatment, but it is an interesting, and to me a new, fact that cold bathing is found to promote the elimination of toxins by the urine. Only one observation I would make, which is, that the bath acts not only by abstracting heat, but by the impression made on the nervous system, and in hyperpyrexia the shock of sudden immersion in ice-cold water or of violent effusion with ice water is the more important action of the two, and is, indeed, essential to the effect.

The latest development of the bath treatment of typhoid fever, destined, as it seems to me, to supersede all other, is the continuous bath which has been employed for several years

with remarkable success by Dr. Barr, of Liverpool. I have watched his records with great interest, and was so greatly impressed by the results, that before appearing here I determined to see for myself the methods by which they were obtained. I paid a visit, therefore, to the Northern Hospital at Liverpool, where I was shown cases under treatment and had the opportunity of examining the apparatus employed. This consists of what Dr. Barr calls a tank—a magnified bath with perpendicular sides, raised on short legs. The size is important, not only as allowing the patient plenty of room, but because a considerable volume of water is the more easily maintained at an equable temperature. The usual temperature is 95° , but it may be lower when the fever is high and does not yield, 90° being the lowest which Dr. Barr has found necessary in ordinary circumstances. In hyperpyrexia the bath may be emptied, and cold or iced water dashed or run over the patient. The patient reclines on an Ilkley couch framework, over which is stretched a loosely-woven material, which easily allows of the passage of the water through its meshes. In the newest form of the apparatus the patient can be raised on his couch completely out of the water by means of a pulley arrangement. A thermometer floats on the water, by a glance at which the nurse sees what its temperature is, and when necessary she adds hot or cold water, as may be required. At first this was done by buckets, and any excess was removed, or the tank was emptied by means of a syphon; but now the hot and cold water are supplied by pipes, and a large exit pipe four inches in diameter passes from the middle of the floor of the tank immediately under the nates of the patient. The shoulders are supported by an air cushion, upon which, again, rests another small, ring-shaped air cushion for the head, and the body is covered by a thin blanket which is brought over the chest up to the neck, as it is difficult to keep the upper part of the chest under water, and the blanket keeps it warm and moist; over the tank is a waterproof sheet. The patient is not necessarily taken out of the tank when the bowels act or the bladder is emptied. Advantage is taken of his removal when the tank is cleansed, once in the twenty-four hours, to obtain an action of the bowels if possible, but at other times the evacuations are passed into the water. The provision made for minimizing the contamination is that under the nates there is a circular aperture in the webbing on which the patient rests, and immediately below is the large exit pipe by means of which the water receiving the stools can be run

off at once before they are diffused in the bath ; a considerable depth of water under the patient is consequently necessary. It would be easy to adapt to the margin of the aperture a flexible funnel communicating with the exit pipe, which would still further diminish the liability to contamination. The three patients I saw under tank treatment appeared to be perfectly comfortable ; the skin of the hands and feet was white and corrugated, as is seen in washerwomen, but elsewhere the integument had a natural appearance. The tongue invariably becomes moist within twenty-four hours, and any abdominal distension present is said to subside, and delirium and tremor to quickly yield.

Dr. Barr has furnished me with complete statistics of typhoid fever treated by him. These would be out of place here. The general result is that out of 180 cases, forty-three of which had the continuous bath, seven patients died, not quite 4 per cent., and two deaths could not fairly be attributed to the fever.

There is no reason to suppose that the typhoid fever of Liverpool is of a less severe type than elsewhere, and the number of cases is sufficient to establish a *primâ facie* conclusion as to the results ; and if there is a method of treatment by which the mortality of typhoid fever can be reduced to 2 or 3 per cent., the only question which remains for us is whether it is generally applicable. In my judgment there is no doubt as to this. I have had some experience in the ordinary bath treatment, and it appears to me that the trouble involved in the continuous bathing is much less. I hope, therefore, that a tank-room will soon be provided at every hospital, and I see no reason why a portable tank should not be constructed, provided with means of renewing and removing the water, and with all other requisite appliances, which might be kept at the different nursing establishments, to be sent out to private houses with nurses trained in their use. It should be added that Dr. Barr reserves the continuous bath for the more severe cases, but the principle of continuous abstraction of heat by water is carried out in all. The abdomen is covered by a wet compress, which is frequently moistened, and only a single thin blanket is allowed as bed-clothing. The extremities, however, may have extra covering, and may be kept warm by hot bottles, if necessary. Having analyzed, so to speak, typhoid fever into the factors which enter into its symptomatology, and considered the methods by which the different processes making for the injury of the patient and tending to

his destruction may be counteracted, I may conclude by bringing them together again, as they are likely to arise in the course of a case, giving briefly the treatment. The patient will, of course, be put on liquid nourishment, the amount and kind of which, and the time of its administration, will be clearly indicated. There will probably be a few days in which the diagnosis will be uncertain, during which it may seem that an aperient is called for. Let this take the form of one or two grains of calomel, followed by a mild saline such as phosphate or sulphate of soda. The resulting motion, and every other stool which the patient passes, should be carefully inspected. Should there be severe headache, not relieved by cold to the head, ten or fifteen grains of phenacetin may be given at night once or twice perhaps. As soon as the diagnosis is formed, cold or tepid sponging will be ordered, or, rather, seeing the excellent results of this practice in the hands of Dr. Barr, a wet apron would be applied to the abdomen and kept moist, instead of reserving it for special indications, the bed covering being extremely light. In no case should an eider-down or other impervious coverlet be permitted. If the maximum temperature in the twenty-four hours does not exceed 102° or 102.5° Fahr. no other treatment will be needed ; but even then unremitting vigilance must be exercised to the last day of the disease, a report of food, drink, sleep, evacuations, temperature, etc., being submitted by the nurse at each visit. When due care is exercised it is not likely that diarrhœa will be induced by undigested milk or improper food. Should it occur and be attributed to intestinal sepsis, liquor hydrargyri perchloridi with quinine or fractional doses of calomel would be given, and this failing to check the undue frequency of the action of the bowels, a starch-and-opium enema would be administered after each loose motion. With a higher temperature, cold wet applications would be employed more assiduously and more extensively, and liquor hydrargyri perchloridi (half a drachm to one drachm) or one-third of a grain of calomel might be given with one or two grains of quinine, especially if the temperature rose suddenly, or pursued an erratic course suggestive of intestinal sepsis, and this whether there were septic diarrhœa or not, the effects, of course, being carefully watched. Supposing the temperature to defy ordinary measures, and to remain at or near 105° in spite of the wet sheet, ice compresses over the abdomen, the ice cap, etc., affusions of ice-cold water would be necessary or a large enema

of iced water might be administered. This is on the understanding that the tank treatment is not available, and that the difficulties attending the employment of the cold bath prevent recourse to it. When Dr. Barr's tanks can be had, the continuous bath will be preferred in all cases in which the temperature reaches 103° . Sleeplessness would be alleviated by ten or fifteen minims of liquor morphinæ bimeconatis. As the disease advanced, if the pulse became frequent, soft, and short, brandy would be given, beginning with two to four drachms every three or four hours; the amount would be increased if the tongue were dry, and especially if the tongue and lips were tremulous and the hands unsteady. Should sudden failure of strength occur, as may happen at any period of the disease, brandy would be administered freely, and ether and strychnine, the latter especially, would be injected subcutaneously. Exhaustion towards the end of a long and severe attack would be counteracted by similar expedients, together with the assiduous administration of concentrated liquid nourishment in small quantities. The patient may sometimes be carried through a period of extreme and almost hopeless danger by unremitting employment of one after another of these resources. Symptoms of oppression of the nervous system not obviously due to exhaustion by protracted high temperature, particularly any tendency to heavy stupor, with small, weak pulse, would be an indication for the administration of two or three grains of calomel, unless the intestinal lesion appeared to be severe, in which case hæmorrhage might result. On the sudden supervention of tympanites half a drachm or so of laudanum or liquor opii would be given. Complications would be dealt with as they arose—hæmorrhage by means of some liquid preparation of opium or morphia to arrest peristalsis, by an ice-bag over the right iliac fossa, and by the subcutaneous injection of ergotin to tighten up the arteries and diminish the systolic output of the left ventricle. In case of perforation a large dose of opium together with morphia injected subcutaneously would offer a patient the only chance.

I have now brought my address to a conclusion, and have to thank you for your patient attention. If I have in any measure succeeded in my attempt to render more clear the part played by the various morbid actions which contribute to the symptomatology of typhoid fever, and have thus made it more easy to deal with dangers as they arise, or to anticipate and

prevent some of them, I shall not unworthily have occupied your time and my own.

Dr. Campbell Pope proposed, and *Mr. Swinford Edwards* seconded, a vote of thanks to Sir William Broadbent for his able and interesting lecture.

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